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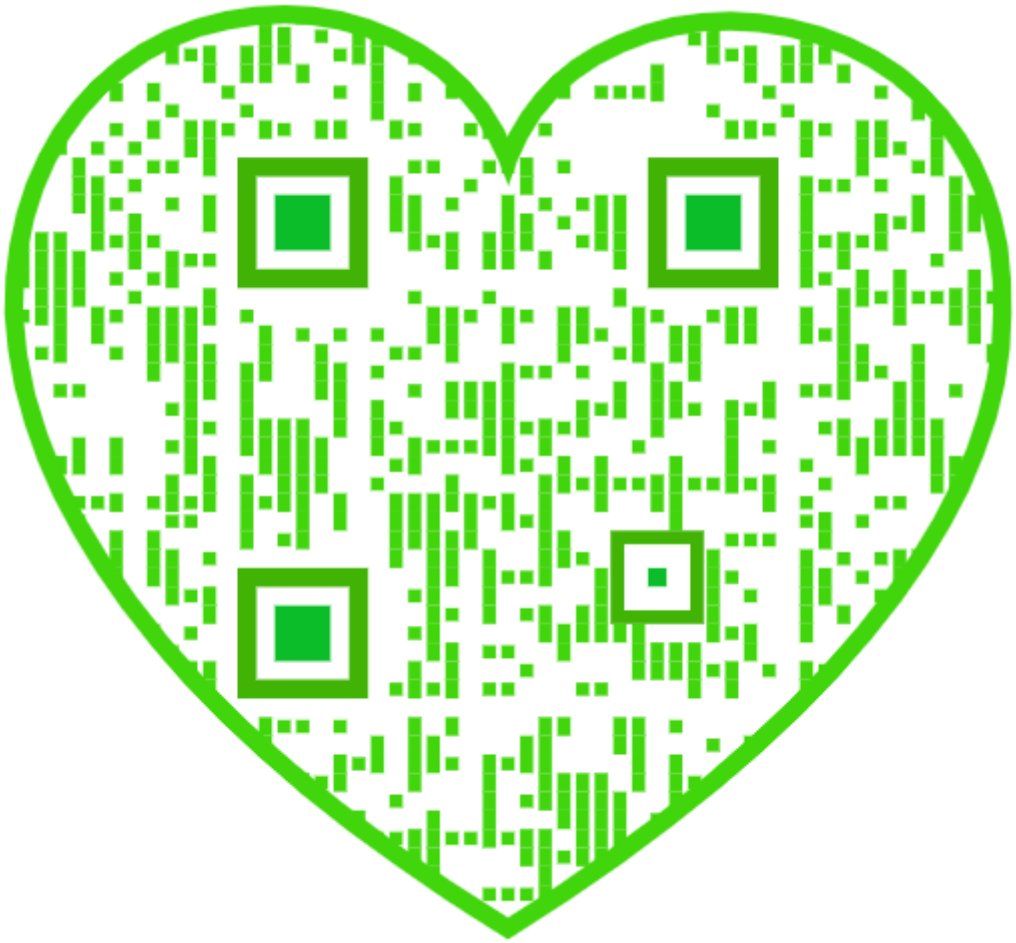

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THE

AMERICAN APICULTURIST:

A JOURNAL

Devoted to Scientific and Practical

BEE-KEEPING.

VOL. I. MAY. NO. 1.

PUBLISHED MONTHLY,

BY S. M. LOCKE, EDITOR AND PROPRIETOR.

SALEM, MASS.

1883.

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HONEY MARKET.

BOSTON, April 27, 1883.

Honey trade is fair for the season. Comb 20 to 22 cts.; extracted 10 to 12 cts.

Bees-wax 40 cts.

CROCKER & BLAKE,
57 Chatham St.

CHICAGO, April 26, 1883.

Honey comb in one and two pound frames 15 to 17 cts., when white and in good order. Dark honey in comb 8 to 12½. Extracted, in kegs and barrels (white clover and bass wood) 9 cts., and dark 8 cts.

Bees-wax 36 to 37 cts.; very scarce.

R. A. BURNETT.

CHICAGO, April 26, 1883.

I quote as follows:

Honey. The season being so late very little business is being done in honey. Prices are weak at 7 to 9 cts. for extracted, and 10 to 13 cts. for comb.

Bees-wax is scarce and brings 35 cts. on arrival, if a good average yellow. Dark and off colors 17 to 25 cts.

ALFRED H. NEWMAN.

CLEVELAND, April 27, 1883.

Honey. The stock of honey is nearly exhausted in our market particularly best white, 1 lb. section. Prices are unchanged. No. 1 white 1 lb. sections sell at 18 to 20 cts.; second quality 17 to 18 cts.; 2 lb. best 18 to 19 cts.; second quality 16 to 17 cts. Buckwheat honey does not sell in our market at any time.

Extracted has been very slow all the season, selling at 9 to 10 cts. in bbls., and 12 to 13 cts. in tin cans and pails.

Bees-wax is exceedingly scarce and none offering. Yours truly,

A. C. KENDEL.

DETROIT, April 26, 1883.

Honey. The market is very dull and prices are weak. Good comb honey is worth 15 to 16 cts.; second quality not wanted.

Bees-wax scarce at 35 to 40 cts.

A. B. WEED.

SAN FRANCISCO.

Very little doing in honey now. All awaiting new crop; first arrivals due last of May and in June; prospects good for a fair crop in California. Bees-wax all sold out of hands of jobbers, none left; what little is left in hands of wholesale druggists would quote as follows:

Honey. A slight improvement in the inquiry the past week. Values remain unchanged.

White comb.....14 to 17 cts.
Dark to good.....11 " 13 "
Extracted, choice to extra white..8½ " 7½ "
Dark and candied.....5 " 7½ "
Bees-wax (wholesale).....27 " 28 "

STEARNS & SMITH.

CINCINNATI.

Wh. Cl. H'y, full p'g's (bbl. or ½ bbl.), per lb. .....11 to 12½ cts.
Wh. Cl. H'y, tin cans of 6, 10 or 25 lbs. net, per can.....50 cts. to $1.10, 1.75, 4.00, 7.50.
Wh. Cl. H'y, ½ lb. glass tumblers, per doz. .....$1.50.
Wh. Cl. H'y, ½ lb. glass tumblers, 2 doz. tumblers in a case, per case.....$3.00.
6 cases of same.....$16.00.
Wh. Cl. H'y, 1 lb. glass jars, 1 doz. jars in a case, per case.....$2.40.
12 cases of same.....$45.00.
Linn. or Basswood Honey, original packages, per lb.....8 to 11 cts.
Poplar Honey, original packages, per lb. .....8 to 11 cts.
Buckwheat Honey, original packages, per lb. .....8 to 11 cts.
Dark or Fall Honey, per lb....." " " "
These latter four varieties in tin buckets (of 10 or 25 lbs. net) per can.....$1.40, 3.30.
Choice Wh. Comb Honey, 25 lbs. in 1 case, per lb.....20 cts.
Medium Wh. Comb Honey, 25 lbs. in 1 case, per lb.....18 cts.

No wax to offer.

CHAS. F. MUTH.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

ENTERED AT THE POST-OFFICE, SALEM, AS SECOND-CLASS MATTER.

Published Monthly. S. M. LOCKE, Publisher & Prop'r.

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All communications should be addressed to S. M. LOCKE, Salem, Mass.

PLAIN TALK ON BEE-CULTURE.

BY J. E. POND, JR.

I.

THE HIVE FOR BEGINNERS.

IN selecting a hive, no one will pretend to think for a moment of using other than one that contains movable frames. The day of hollow logs, bee-gums and box-traps, has gone by never to return; but in the selection of the frame, there is so great a diversity of opinion, that a beginner in bee-culture may well pause for a moment before he makes a permanent choice; and any advice or information that tends to clear away the doubts from his mind will probably be welcomed by him. I have been engaged in bee-culture some seventeen years, and during that time have experimented with most of the leading frames in use, and have adopted the standard Langstroth frame, as the one that seems to meet the many requirements called for, to secure the best results. I do not propose to decry any other frame, and will say right here, that success in apiculture depends more upon the man who engages in it, than upon the form or style of frame he uses. He who enters into this work intelligently, and with a well-rooted and grounded purpose, imbued with a strong determination to succeed, will hardly fail, no matter what frame he may choose; but if he makes the right choice at the start, success will be more easily achieved.

The Langstroth frame was the invention of one of the ablest apiarists the world ever saw; to him and his labors should be given all praise. The introduction of the movable, sectional frame, by the Rev. L. L. Langstroth, formed an era in bee-culture, and gave an impetus to the business, which has carried it to the front rank of the paying occupations, aye! professions, of the present day; and more still, his power of thought, strength of mind, and acute knowledge of the habits of the honey bee, are shown in the fact, that the frame that bears his name is used by the majority of successful beekeepers, in precisely the same form and

shape in which it was first given to us. I believe that nearly all admit that for summer use, the standard L. frame is the best, and if any do not admit it is the best, they at least acknowledge it to be as good as any; the chief exception to it being that its shallowness makes it unsafe for a winter hive. Now, how is this objection borne out in practice? I cannot believe that those who make this objection have given it a fair and thorough trial, for I myself, always wintering on summer stands in seven-eighths inch single walled hives, without extra protection, have never lost a colony in them as the result of cold; and during some of the winters I have kept bees, the thermometer has shown the temperature to be below zero for days at a time, while with deeper frames, during the same winters and with equal protection, several colonies have been lost.

We must admit as a logical proposition, that every cause is followed by a consequence, and every consequence has some cause. Now, why should not our bees winter as well in a frame nine and one-half inches deep? What is the cause that should prevent them from so doing? I ask these questions in all fairness, and do wish some one would give a logical and scientific answer. When I see the claim made that bees will not winter as well in shallow as in deep frames, I am reminded of the question once asked of a number of scientists who were assembled together; the question was, why does a fish weigh more out of than in water?" Various reasons were given, none of which proved at all satisfactory, till at last some one was led to ask, "does it? The trial was at once made, and lo! there was no difference; so in regard to the wintering qualities of frames. When the question is asked, why do bees winter better in deep, than in shallow frames, the first thing to be determined is, do they? My experience is, that they winter better in a hive as shallow as the L. frame, than in one deeper. Mr. Hasty (a noted bee-keeper and writer on apiculture) claims that the L. frame is the safest and best for out-door wintering of any yet introduced. Mr. Bingham (the inventor of the Bingham honey-knife and bee-smoker) keeps his bees on frames only six inches deep, and informs us that they winter successfully in them, with temperature for many days in succession far below zero. Having given this frame a fair and thorough trial with the simple desire to get for myself the best, I have adopted it, and do emphatically recommend it to any and all, as the very best one known. I have no hives to sell, and no friend in the supply business to bolster up, so that my opinion may at least be admitted to be an honest one, as I have no possible axe to grind in giving or expressing it.

I firmly and fully believe that any unprejudiced person who will give this frame a fair and impartial trial, will come to the same conclusion. If it were not a safe hive for wintering, and to say the least

as safe as any, why is it so generally used? More of these frames are now used by practical apiarists, than of all others combined, and the number is constantly increasing. It has worked its way to its high position on the pedestal of public opinion, solely on its own merits, and that too in the face of tremendous opposition, and my opinion is that ere long it will become the standard of the world, and fully acknowledged and admitted as such. For these reasons I advise beginners to adopt this frame at the start, believing they will never change, and by so doing they will not in a short time find themselves decidedly out of date and far behind the times.

Foxboro, April, 1883.

BEES AND HORTICULTURE.

By A. J. Cook.

If some of our fruit-growers were to write upon this subject, they would place as the title: Bees *versus* Horticulture. Some of our ablest entomologists are persuaded that bees do not always play the role of friends to the pomologist.

What I am to say of bees would apply equally well, in some cases, to many other sweet-loving insects, as the wild bees, the wasps, and many of the dipterons, or two-winged flies; only as early in the season other insects are rare, while the honey bees, though less numerous than they are later in the season, are comparatively abundant, even early in the spring months.

My first proposition is, that plants only secrete nectar that they may attract insects. And why this need of insect visits? It is that they may serve as "marriage priests," in the work of fertilizing the plants. As is well known, many plants, like the willows and the chestnuts, are diœcious. The male element, the pollen, and the female element, the ovules, are on different plants, and so the plants are absolutely dependent upon insects for fertilization. The pollen attracts the insects to the staminate flowers, while the nectar entices them to visit the pistillate bloom. Some varieties of the strawberries are so nearly diœcious, that this luscious fruit, of which good old Isaac Walton wrote: "Doubtless God might have made a better fruit than the strawberry, but doubtless God never did," would in case of some varieties be barren, except for the kindly ministrations of insects. Other plants are monœcious; that is, the stamens and pistils are on the same flower, but the structural peculiarities are such, that unless insects were wooed by the coveted nectar, fertilization would be impossible. Many of the plants with irregular flowers, like the orchids, as Darwin has so admirably shown, are thus entirely dependent upon insects to effect fructification. In many of these plants the structural modifications, which insure fertilization consequent upon the visits of insects, are wonderfully interesting. These have been dwelt upon at length by

Darwin, Gray, Beal and others, and I will forbear to discuss them further.

But many of our flowers, which are so arranged that the pollen falls easily upon the stigma, like the clovers, squashes and fruit blossoms, fail of full fruitage, unless forsooth, some insect bear the pollen of one flower to the pistil of another. As has been repeatedly demonstrated, if our fruit bloom or that of any of our cucurbitaceous plants be screened from insects the yield of seed and fruit will be but very partial. Professor Beal and our students have tried some very interesting experiments of this kind with the red clover. All of the plants under observation were covered with gauze that the conditions might be uniform. Bumble bees were placed under the screens of half of these plants. The insects commenced at once to visit and sip nectar from the clover blossoms. In the fall the seeds of all the plants were counted, and those from the plants visited by the bumble bees were to those gathered from the plants which were shielded from all insect visits, as 236 : 5. Thus we see why the first crop of red clover is barren of seed, while the second crop, which comes of bloom visited freely by bumble bees, whose long tongues can reach down to the nectar at the bottom of the long flower tubes is prolific of seed. This fact led to the importation of bumble bees from England to New Zealand and Australia two years since. There were no bumble bees in Australia and adjacent islands, and the red clover was found impotent to produce seed. When we have introduced *Apis dorsata* into our American apiaries, or when we have developed *Apis Americana*, with a tongue like that of *Bombus*, seven-sixteenths of an inch long, then we shall be able to raise seed from the first crop of red clover; as the honey bees, unlike the bumble bees, will be numerous enough early in the season, to perform the necessary fertilization. Alsyke clover, a hybrid between the white and the red, has shorter flower tubes, which makes it a favorite with our honey bees, and so it gives a full crop of seed from the early blossoms.

In all these cases, we have proof that nature objects to close interbreeding; and thus through her laws, the nectar-secreting organs have been evolved, that insects might do the work of cross-fertilization. As in the case of animals, the bisexual or diœcious plants have been evolved from the hermaphroditic as a higher type; each sex being independent, more vital force can be expended on the sexual elements, and so the individual is the gainer.

It is sometimes contended by farmers, that the visits of bees are detrimental to their crops. I have heard farmers say that they had known bees to destroy entirely their crops of buckwheat, by injuring the blossoms. There is no basis of fact for this statement or opinion. Usually bees visit buckwheat bloom freely. If for any

reason the seed fail, as from climatic condition and influence it occasionally will, the bees are charged with the damage, though their whole work, as shown above, has been beneficial and that only.

It is true, as I have personally observed, that species of our carpenter bees (*Xylocopa*) do pierce the flower tubes of the wild bergamot, and some of our cultivated flowers, with similar long corolla tubes, that they may gain access to the otherwise inaccessible nectar; the tubes once pierced, and our honey bees avail themselves of the opportunity to secure some of the nectar. I have watched long and carefully, but never saw the honey bee making the incisions. As I have never heard of any one else who has seen them, I feel free to say that it is entirely unlikely that they are ever thus engaged.

My last proposition is, that though bees, in the dearth of nectar secretion, will sip the juices from crushed grapes, and other similar fruits, they rarely ever, I think never, do so unless nature, some other insect, or some higher animal has first broken the skin. I have given to bees, crushed grapes, from which they would eagerly sip the juices, while other sound grapes on the same stem — even those like the Delaware, with tenderest skin, which were made to replace the bruised ones — were left entirely undisturbed. I have even shut bees up in an empty hive with grapes, which latter were safe even though surrounded by so many hungry mouths. I have tried even a more crucial test, and have stopped the entrance of the hive with grapes, and yet the grapes were uninjured.

In most cases where bees disturb grapes, some bird or wasp has opened the door to such mischief, by previously piercing the skin. Occasionally there is a year when an entire vineyard seems to be sucked dry by bees in a few hours. In such cases the fruit is always very ripe, the weather very hot, and the atmosphere very damp; when it is altogether probable that the juice oozes from fine natural pores, and so lures the bees on to this Bacchanalian feast. I have never had an opportunity to prove this to be true, but from numerous reports I think it the solution of those dreaded onslaughts, which have so often brought down severe denunciations upon the bees, and as bitter curses upon their owners.

Lansing, Mich.

HINTS FROM OBSERVATIONS.

By L. C. Root.

In all my writing upon the subject of beekeeping, I have endeavored so to qualify my statements of facts, as not to lead the beginner to expect more than he in his inexperience could realize; yet I have received some criticism for statements of yields of honey which we have reported.

I shall therefore offer some hints, as to methods we have pursued in

securing such results. To show the progress which has been made, let me cite the following:

Before the movable-frame hive was invented, if by any chance fifty pounds of box honey were secured from a single stock in a very favorable season, it was considered a remarkable yield; after the movable comb hive was more generally in use 100 lbs. were as easily obtained. Then with more experience and better methods, twice this amount of box honey was received and still we advanced, until as much as 300 lbs. were reported. During the season of 1872 we took 225 lbs. from each of several stocks.

The honey-extractor had been given us and the amount of honey which could be secured was greatly increased by its use. From 100 to 150 lbs. of extracted honey, was, in a good season, found to be easily secured from good stocks with proper management. In 1870 we took our first large yield from a single stock, which was 361 lbs. Since this we have taken as much as 484 lbs. from one stock.

Our greatest success was during the season of 1881, when we took from an apiary of 40 colonies 9727 lbs., which was a little over 243 lbs. to the hive on an average.

We give these facts to show the advancement which has been made. Further than this I desire to say that it is my opinion, based upon close observation, that the possibilities to which we shall yet attain are far from being reached.

While these facts are of interest, they will not be of practical value, unless I shall offer some suggestions as to how such yields were secured; that some who are yet inexperienced may be stimulated to investigate more closely in this direction.

First let me say, that the "key-note" to success, in any business where a large amount of labor is required, is a large force of workers. Beekeeping is no exception to this rule. If your working force is limited you will receive but a small amount of honey. If large, the yield will be large in proportion, provided always, that we do not lose sight of the fact, that provision is made to keep all employed. In this as in all other pursuits, idlers should not be allowed in the way for those who are busy to stumble over.

In his first edition of the "Mysteries of Beekeeping Explained," published in 1853, Mr. Quinby recommended putting on boxes when the bees are lying idle upon the front of the hive. This of course is at a season when honey is afforded.

Let it be remembered that when bees are observed to be thus idle, when honey is plentiful, is an evidence that some necessary requirement is lacking.

Now in securing a large force of bees which will be ready to gather honey at the proper time, many things are necessary; in fact, this field is so broad, that I can at most but hint at the different points as I pass.

Very much will depend upon the success one has in wintering. If

bees are in good condition when taken from winter quarters we have great gains by it. The first point I shall urge is to wait until a proper time in spring before commencing operations.

I am not opposed to every investigation in the direction of every method which may throw light upon the use of artificial heat, and of feeding to increase early breeding; on the contrary, I urge this, but I do say, that all my past experience has been against the advice of so many, to handle and stimulate bees during March and April, in this climate. If bees can be kept breeding reasonably during this time, by being well supplied with good stores, the season previous, it may be well; but in my experience the rule is, that during this early cold period, every possible means should be resorted to, to prevent the bees from flying.

If they are doing well in winter quarters, leave them there undisturbed until the first of May in this cold climate.

For any location, let the time be indicated by the blossoming of soft maple or some tree or plant which is an indication that favorable weather may be expected.

At this time every effort should be made to crowd brood-rearing to its utmost extent. Be sure each stock has a good prolific queen. Economize space in brood-chamber to correspond with size of stock. Contract the entrance and in every way prevent the escape of heat. Enamelled cloth, cut the proper size to fit *closely* over the top of the frames, is extremely desirable at this season.

Be sure that each stock has a good supply of honey at all times. If all the requirements are right, bees should be handled but little at this season. In fact, if the weather is unfavorable, every precaution should be taken to avoid disturbing them.

As the season advances and the number of bees increases, they may be handled and combs spread, etc., as necessity may require.

All who have had experience are aware of the rapidity with which stocks, under proper conditions, will increase in numbers, during the last part of May and June.

About the time when bees naturally begin to swarm, we reach an emergency which should be promptly met.

We have taught during the past that, when a stock was sufficiently populous to swarm, the queen would discontinue her laying and become reduced in size, in order to be able to fly with the swarm, and that the development of eggs was discontinued for this purpose. This is, in some cases at least, an incorrect theory.

I find that where the combs are spread from time to time in a strong stock, and the queen is afforded an opportunity to deposit eggs to her full capacity, that she exhausts her ability to continue depositing eggs freely, and comes to a point where she must have a period of rest. Thus it will be seen that at this time she has naturally come to a condition, by

depositing eggs largely, where she is reduced in size and able to fly with the new swarm. When allowed to swarm she is taking the required rest, while comb is being built, and the new hive is put in readiness for eggs to be deposited more freely later.

We find a great advantage in having young queens reared and fertilized that they may be in readiness to introduce as soon as our old queens reach this condition. Every beekeeper should rear a sufficient number of queens during the time of fruit bloom to meet this demand.

If the old queen, which comes to a point of needed rest, is a superior one and it is desired to hold her, this may be done by changing places with a young queen and allowing her to be held in the nucleus from which the young queen is taken. In time to come, when an apiary is run to the highest standard of perfection, we shall find that the average queen will not be kept from two to three years as is now the custom. Her work will be accomplished in a much shorter time. Right here is room for an entire article. I can only pause to say that I would never use as a mother, from which to rear queens, one which was being forced to the utmost capacity in depositing eggs.

I might at this point spend much time in describing the desirability of running a nucleus hive, with the same size frame, at the side of each original stock. This should be started as early in the season as the original stock can spare a comb of brood and sufficient bees. If working for box honey, we often find it the most desirable time to start this side hive, when we place the boxes upon the original hive.

We have often increased the amount of brood to such an extent that we have two or three combs of brood more in our original stock than are required for boxing. These may be used in starting the nucleus, or, if it has been previously started, such combs will be of untold value in strengthening it.

These side hives may be used for rearing queens, holding old queens, etc.

If the system is practised of making the old hive, which is boxed, queenless to prevent swarming, the queen may be held here and brood taken from it to keep the original stock populous. In good seasons, these side hives often furnish a good quantity of extracted honey. If it is not desirable to increase the number of colonies of bees, the honey may all be extracted and the bees with the young queens, united with the old stock which has been boxed, and the combs cared for, for the following season's use.

Two stocks may be manipulated side by side in this way, when securing box honey, to marked advantage in preventing swarming.

When working for extracted honey, it is often of equal advantage. The side hive may be built up to the proper size and condition, and the honey entirely extracted from the original stock, and after the honey season is over the bees united

with the side hive which should contain a young queen, or one which has not been crowded during the season.

It is all-important, that each stock should go into winter quarters, with a queen which shall be in perfect condition for the requirements of the following season's operations.

With these hints, I must pass on to a brief mention, of the all-important subject of

PROPER SPACE FOR STORING HONEY.

It is of great importance, that each beekeeper be sufficiently observing, to know the sources from which he may anticipate his yield of honey, and the dates at which each kind may be expected.

This has great bearing upon the time at which the force of bees should be secured to gather it, as well as upon the time when room should be furnished for the surplus, and the amount of room needed.

In deciding upon the amount of box room necessary, there are difficulties to overcome. The boxes should be supplied as soon as they will be occupied, and should be furnished in such quantities as the yield in each location demands. Care must be used not to furnish so largely that they will not be completed. It is also necessary that with this system of management, the honey be cured as rapidly as possible. This necessitates a high degree of temperature, which tends to produce swarming.

There is room for much advanced thought in this connection. In securing extracted honey, the operator may have more entire control. The furnishing of an abundance of room for the storing of surplus may be attended to with less difficulty.

As to the proper time to extract honey and the curing of the same, I have given my views to some extent, in a paper read at a recent session of the Northeastern Beekeeper's Association. I shall hope that from suggestions there made, something of interest in this direction may be developed.

At the time we secured our first large yield of honey in 1870 when we took 361 lbs. from one stock, as well as each time when we took our large yields, we furnished ample room for the bees to store and cure their honey. Each stock was furnished with 32 combs; there were two tiers high of 16 each.

I found that while most of the cells were but partly filled yet the entire surface was occupied; showing the desirability of a large surface in which the honey may be spread, if it is to be cured in the hive. My great desire to hit upon these many points has made these remarks by far too long.

If we shall all unite our efforts in a broad, unselfish spirit for the upbuilding of our pursuit, I predict for it a prosperous future.

Mohawk, N. Y.

SYSTEM.

By Geo. W. House.

We may turn our attention in any direction we wish and shall see that perfection is attained only through *system*. We see it in the creation of the heavens and the earth; in the different seasons of the year accompanied by the dews, winds, rainfalls, the influence of the sun, etc., without which all vegetation would be naught, in fact, everything in which *nature* plays a part *must be* and is in accordance with some *system*.

Take, for example, the daily toil of the ant. What could be accomplished by these insects without system? All the *nations* of the world must have a system of *government*, or become annihilated and fall a prey to some other power.

We see the importance of system in conducting and running the hundreds of trains on our great railroads. The system of commerce enables our vessels to navigate to all parts of the world. *Without* system, our postal-laws would be of but little account; our express companies could accomplish nothing; our money would be of no value and no market would exist for our various articles of production. System is foremost in our manufactories, in banking and in printing. It is system that enables our Wall street brokers to manipulate the stock markets; that insures success to the thousands of our wholesale and retail business houses; and it is of vast importance to the fancier, in breeding and improving our horses, cattle, swine, poultry, etc. In fact, *any* business without systematic management will sooner or later succumb to the inevitable.

With these facts before us, what think you of apiculture? The finest illustration of system we have is exhibited in the habits and home of the honey-bee. If we would but study them, we shall learn that to attain perfection in our calling, and place apiculture on an equal footing with kindred pursuits, we should inaugurate *system*. Can you tell of any pursuit of equal magnitude that manifests so little system as is displayed in the management of *our* products? That much system is shown in the *management* of the apiary is true; but there is room for much improvement.

It is to be regretted that our bee-literature in all its different forms gives so little attention to a subject of so much importance. Can you find a page, yes, a column, or even a short article on this question? And if not, why not?

There is an opportunity for improvement in our journals to render them indispensable to every apiarist. Instead of publishing so many letters, extolling either the editor's goods, or some act of his, would it not be better to devote that space to *this subject?*

We need a universal system in grading and crating our honey, and marketing the same; in the manufacture of our hives, boxes, etc.; in collecting reliable statistics in time to be of benefit to the producer; in buying all our supplies, and in fur-

nishing us with complete and comprehensive market reports.

How can all this be effected? Let us discuss the question. Wherever we find system, how was it perfected? Not by the inexperienced or the novice: but by the *masters* of their respective lines of business, the smaller fish abiding by their action. So in apiculture, we should give less attention to the *whims* and fancied discoveries and the pictured theories of the novice, and should select one or two hundred of the *masters of apiculture* to inaugurate a system of grading and marketing, let them decide what styles and sizes of brood-frames and section-boxes should be adopted and use these and no others. The smaller beekeepers will fall into line to a man.

Our "*North American Society*" could be used to good advantage in this respect by electing members thereof who are the acknowledged leaders in their respective districts.

If those who have had the longest and largest experience cannot decide these questions, who can?

I know of but one way in which we can obtain *reliable* statistics. Organize a state association in each and every state. Elect a vice-president from each county in the state, who is well posted in regard to the beekeeping in his respective county, and require him to fill out such blanks as are furnished by the association and report at a given time to the secretary, who in turn shall report at once to the secretary of our national society who shall cause the same to be published at once.

This would secure *accurate reports* and cost but little, as each association would bear its own expenses. Such information would be very valuable, and I believe it is the only way in which the desired result can be accomplished.

Were I an "editor" I should make market reports a specialty. I would allow all necessary space and give much *time* to the subject. There are reliable beekeepers close by all our principal cities who, for a reasonable compensation, would study the market and give accurate reports. We want to know the movements and amount of sales, the shape and condition in which it is placed on the market, whether it is scattered about or well concentrated, and the actual buying and selling prices. Any one of our journals can double its subscription list by giving this subject proper treatment and study.

Why are so many beekeepers manufacturing or selling supplies? It must be a better business financially than apiculture is, or else so many would not be engaging in the business. The expenses for postage, stationery and advertising, besides the time spent in attending to correspondence and delivery of goods, must require a good margin on the articles sold to be remunerative to the proprietor. All these profits can be saved to the buyer by inaugurating a system for purchasing our necessary supplies.

In buying our glass, for instance,

we pay *well* for the systematic combination of the manufacturers; the same with many other articles used in the business. I have illustrated to many of our New York beekeepers a system by which we can break these combinations, and have proven to them that with system we can save one cent for every pound of honey produced. This one cent would make quite a difference on the profits of our crop, and would be a saving to American apiarists of nearly one million dollars annually.

If we want to put the price of honey lower so as to increase the consumption, here is a chance, and that too, without decreasing the profits of the producer. I might say much more on this subject, but this article is already too long, and as I am giving my spare time to this question I should be pleased to have every reader of this paper, who would like to see the practical workings, and enjoy the benefits derived from such action, make it manifest by sending me a postal card, and we shall see what can be done.

Fayetteville, N. Y., Mar. 30, 1883.

BEE-CULTURE IN GENERAL.

By G. W. Demaree.

The modern system of beekeeping is not the work of any one person, but is the result of the aggregated labor and brain work of hundreds of persons all over the wide world. Apiarists, as a general thing, are men of broad views, possessing a large share of public spirit; they freely give to the public all of their hardly acquired knowledge, and by means of their pens their light is spread from sea to sea.

Were I asked what has contributed most to the perfecting of the modern system of bee-culture, I should answer, that there is but *one great cause*, and that is the "movable frame system." Nearly every important invention which has been brought to light, many of which are essential to profitable bee-culture, would be useless in the absence of the movable frame.

How essential, then, it is to have a thorough knowledge of this, the essential part of beekeeping, and also of the art of manipulating bees.

It is true that many persons may, and do make beekeeping pay, who never were, and never will be, skilful manipulators; but then such persons simply profit by the experiences of others, and never themselves add anything to the general store of knowledge.

When we take into consideration the fact that the present advanced state of bee-culture, of which most of us feel a just and reasonable pride, has been reached as it were "step by step," how important it is that all should strive to add something to the ever-swelling tide of knowledge.

It is a fact to be deplored—especially by us older ones—that the chief hindrance to the rapid advancement of the science of api-

culture in the past has been the disagreeable and unreasonable bickerings of weak and selfish men, to whose selfish interests all things must bend or be broken.

While, on the other hand, man being a creature of "extremes," some have gone in the opposite direction and indulged in tiresome "toadyism," ready to "slop over" with friendship (?) for every thing and every body. Of course this is less reprehensible and vicious in character than the former, but scarcely less injurious to progressive bee-culture.

For the life of me, I am unable to see why bee-culture should be beset by a greater amount of pure "cussedness" than all other industries have to endure, and yet it really seems that such is its fate.

I expect better things, however, from the young men who are just entering the field of apicultural science, which is all ablaze with light. They have only to take up the business where others have left off, and with strong arms and fresh intellects, push it forward till others, in turn, shall take their places.

My advice to such would be, conduct bee-culture strictly on sound business principles. Banish all unnecessary sentimentality; let nothing pass without knowing the "whys" and "wherefores;" and above all, strive to cultivate an unselfish spirit, and never become so *wise* as to forget that others may have "rights of their own" and may really know as much as you.

I have written this short article as a reminder to those who are about to enter the business of apiculture, that the calling is entitled to as much "dignity" as other rural industries, and should thus be stripped of all petty jealousies and contemptible bickerings on the one hand, and from all silly palaver and maudlinism on the other.

Christiansburg, Ky.

THE "WINTER PROBLEM."

By Henry Alley.

Has the *Winter Problem* been solved? The frequent and discouraging reports of heavy losses in wintering, and the large number of empty hives to be seen in many apiaries all over the country, answer, no. Chaff hives, double-walled hives, and in fact, hives of every description, seem to avail but little, so far as successful wintering is concerned. I wish to offer a few remarks on this subject, but do not intend to condemn any style of hive, or method of preparing for winter. The hive is of minor importance in this matter, and there are things to be considered, of vastly more interest and which exert more influence in this regard, than does the hive, or packing and preparing for winter. One point to be considered is this: have we any established strain, or distinct race of bees, that includes the necessary qualities which fit them to withstand the extreme changes and trying severity of our long winters?

We most assuredly have bees that

gather large amounts of honey and queens that are as prolific as can be desired, but I am thoroughly convinced, that all have not the bees that winter as successfully as they ought and which we must have, ere the winter problem is permanently solved. It is imperative that we develop a strain that will winter well on the summer stands, notwithstanding the extreme changes, or long continued cold spells which are experienced in our northern climate. We want bees that will not become uneasy and attempt to fly every time the sun slightly warms up the front of the hives; those that will not consume as much food in two months, as should suffice for six months; those that will not winter or spring dwindle,—a strain, about whose hives but few dead bees will be found during winter, either on the snow or ground, and bees that are not subject to dysentery.

Now is it possible to attain to this standard? I would answer: yes, such bees can be found in some parts of our country. We can propagate them and more fully develop the desirable qualities above mentioned, by breeding only from those that survive the severe winter weather; or, in other words, breed from the "survival of the fittest."

Some will say that it is impossible to have, or rear, such bees as I have described. Well, my friends, you simply err in regard to this matter. We have such, and many of our practical and successful apiarists possess those equally as good.

Suppose we had twenty-five colonies of bees all in the same condition when they went into winter quarters. Now if one-half of these colonies die before spring, some of dysentery, some from causes unaccounted for, and others dwindle, while the rest come through with even more bees than they had before being placed in winter quarters, to what should we attribute the conflicting result? Shall we assume then that they were not well packed? Or to what shall we attribute it?

In consequence of the careful observations I have made during the past few years, I am ready to say the trouble is with the *strain* of bees, and not with the food, packing, or hives used. I find that some strains will not winter in the cellar, or on the summer stands. What is needed is bees that will winter in any suitable place when properly packed, and this may be done by careful breeding.

I have had some colonies consume their winter stores (say twenty-five pounds or more) before April 1, while others, supplied with food at the same time, of the same quantity and quality, and wintered the same, come through with colonies even more populous than they were in the fall; no dead bees were seen about these hives during the winter, either on the snow or ground. I will not say that there were *no* dead bees as probably there would and certainly there should be a few that die of old age during the winter, but few were seen about the hives at any time. With other colonies there would be more or

less dead bees, on the alighting boards around the hives and on the snow during the entire winter.

Last fall I had a small colony that was made up late in the summer and which went into winter quarters with less than one quart of bees. I marked that colony "to die." Occasionally, I would give the hive a slight rap to see if they were all right; they were sure to respond every time. They positively refused to succumb or give up the ghost; and to-day, although they are slightly reduced in numbers, they are vigorous and intent on doing some business the coming season. Well, why is it that this small colony came through successfully, while some stronger ones died? Simply on account of having a queen that *is* a *queen* in every sense of the word, one that is hardy, strong and vigorous, and bred from a strain I have described. Now, such a queen will do from which to breed.

I have selected queens of this class from which to breed the coming season, and would not think of breeding from one that had not brought her colony through the winter in good condition. I have some strains of Italians that have done this completely and satisfactorily; but I have no bees that are so hardy as the hybrids produced by crossing the Holy Lands with the Italians, which meet all the requirements requisite to successful wintering better than any other race or strain extant.

It really looks as though the coming bee would be developed by crossing the bees of these two races. The light Italians are beautiful, gentle, and fine honey gatherers, and they are *the* race for the southern or warmer climate, rather than for our New England or northern states. They do not winter as well as the dark Italians: I believe all admit this. When I say dark Italians, I do not wish this to be construed to mean, as not handsome because they are dark; on the contrary, they are very beautiful, while the light Italians are more of a straw color.

Bees that will winter well out of doors or in the cellar, are those that possess every desirable quality as honey gatherers. The summer stand is the proper place to winter bees, and when the right strain is developed we can winter them as successfully as we can our cattle and with as little trouble. Now, my friends, do not go into the "fancy bees" too deeply; secure those which contain the largest number of the desirable and essential requisites which ensure the best results. When you have secured such, or developed a strain which contains the previously described qualities (and you certainly can produce them by careful selection and breeding), then shall we have solved the winter problem, and have the coming bee.

Wenham, Mass.

NOTES FROM THE BIENEN ZEITUNG, GERMANY.

By Julius Hoffman.

Dr. Dzierzon says: The quietness or dormancy of bees[1] does not depend on higher or lower temperature, but on the condition of vegetation; whether vegetation is stopped by cold or heat is immaterial.

It is therefore quite wrong to suppose that bees must not be kept too warm in winter, in order to keep them in quiet repose. Instinct makes them keep quiet when no honey or pollen is to be found, excepting some occasional purifying flights, no matter how nice the weather may be in fall or winter.

Foul air and want of water in connection with cold weather are the principal causes of bad wintering. Cold weather will not prevent bees from too early breeding, as low temperature will condense much moisture, which induces bees to breeding. A warmer and more even temperature will rather retard breeding at unseasonable times.

The best time for the beginning of brood-rearing is when they begin to carry natural pollen. Bees are taken care of best in winter when housed in a dark cellar or similar locality, but plenty of fresh air should be admitted into the cellar and hives; and as in an even and moderate temperature not much moisture will condense, the bees may also need some water in case the honey should be rather thick and candied.

In another article he speaks of the desirability to preserve and lengthen the life of valuable queens from which we may want to breed; he quotes one case where an extra good queen was made useful for six years by purposely limiting her fertility.

C. J. H. Gravenhorst practises the following plan to prevent afterswarming and raise extra queens: he divides his colonies, after the first swarm has issued, by means of tight-fitting division boards, into two or more nuclei in the same hive by giving each a separate entrance; then each one receives a queen-cell and raises a queen. By this means a colony, being divided into several small ones, will not swarm again and some valuable extra queens are gained. The extra queens are taken out after they begin to lay to make use of and the nuclei united again to one colony.

Before uniting, the bees should be made acquainted together by a small opening at the top or bottom of the division board or elsewhere for about forty-eight hours. The entrances, if all are on one side of the hive or rather close together, should be kept separated by division boards fastened outside the hive.

I have practised the above plan of dividing to quite an extent and can recommend it.

Fort Plain, N. Y.

[1] The author is speaking of out-door wintering.—J. H.

POPULAR MISAPPREHENSIONS IN REGARD TO BEE-CULTURE.

By E. E. Hasty.

"Fussing with bees" is what they call it, because, you see, they do not think it laborious enough to be called work. A very suitable occupation for confirmed invalids, and constitutionally tired and *re*tired clergymen, and for ladies in search of a sphere. These ideas cannot be squelched at once, but we can put in our protest, and some day or other the truth will prevail.

Some women can keep bees. And just so some women can raise forty acres of corn. Success in either path must be won by downright hard work. As a vocation for women, bee-keeping does have this much in its favor; that great tyrant "society" gives permission to keep bees; while if a woman essay the forty acres of corn society would frown her down as an Amazon. The woman who goes at bee-keeping as the half of female domestics go at housework, or as one-half of well-born daughters go at their various ways of disguising idleness, can do nothing else but fail.

Some invalids can get a few bees, and, by healthful work in the open air, build up their health while they are building up their apiary; but nothing but a ruinous failure could come of the attempt to run a large apiary at once — unless the alleged invalid had somewhere, either active or latent, a large capacity for work. Invalids that suffer seriously when exposed to hot sun, or in any way subject to overheating of the blood had better let bee-keeping alone. A man who is going to run a hundred colonies of bees through the swarming season needs be a regular salamander, almost as much so as if he were a puddler of iron, or a steamboat fireman. A little rebate may be granted here. Nothing herein contained is intended to forbid a confirmed invalid, or any other man or woman, from keeping a few bees, and supplying their own table with honey.

Clergymen are subject to the same restraint as to a vocation that women are. Parishioners would kick up such a row about the matter that walking-papers would have to be made out if the pastor should mend boats, or keep a grocery. Excepting work with the pen scarce anything could be named that would provoke so little opposition as bee-keeping — but no lazy folks need apply. At any rate, unless the support be very inadequate, and the need of more income quite urgent, a pastor should usually be content with a small apiary. A little change of thought and its accompanying exercise in the open air will not injure the quality of the Sunday's sermon, but improve it. Really, fellow mortals, let us pity the sorrows of the poor clergymen — required to dress and live like $5,000 a year, while receiving $300 and a donation of the cold victual sort.

In thus affirming that bee-keep-

ing is hard work I do not assert that great strength is absolutely required. People who can lift but a small number of pounds may succeed, if that is all the disability, Strength often comes very handy, however; and considerable expenditure of muscle must be put forth for many hours of the day. I have been a farmer boy under a good old farmer who was a foe to both leisure and play; but I think I never in my life wrought so many hours as last summer with my bees. Apiary work has much of it to be done in a half bent posture, and is the harder on that account.

To go for another misapprehension, bee-keeping is very dirty work. Outsiders think it is nice—misled probably by the dainty purity of a section of clover honey. Alas, there is a difference between the product and the work! as much as there is between a nice sheet of white paper and the work of gathering and sorting the rags. If one contemplated becoming a sailor he would regret the hard necessity of getting used to having his hands continually covered with pitch and tar. Between tar and propolis there is scarce a penny to choose. There are agents that will remove propolis from the hands, but practically one has to get used to having his hands stuck up with it most of the time. If something that it will not do to defile must be touched, just rub the hands with soil or sawdust, or clench the smooth branch of a tree, and wrench the closed fingers around it until the propolis, partly rubbed off and partly glazed over, ceases for the moment to stick.

A brand-new misapprehension that has got afloat of late is that bee-culture is enormously profitable, a regular bonanza in fact, say 100 colonies yielding $50, each equal $5,000 per year. I fear that the sulphurous and nigritudinous lies some brethren and sisters have been telling are responsible for much of this. When you find a bee man who makes $5,000 per year on his bees just cast a net over him until the rest of us can come and take a good look. The net will last many years before it is worn out.

Another misapprehension that I fear has gained some currency is that apiculture is a matter of such simple routine that any person, even though not naturally ingenious or thoughtful, can easily master it. This looks to me as the most rank error of all. A bungler cannot keep bees with success. In scarcely any other avocation is a living won by so large an expenditure of brain.

To all these disadvantages another must be added. The business has a spice of lottery about it. Frightful losses are liable to come in February, March and April, sweeping away perhaps five hundred dollars worth of bees as with the "bees-em" of destruction. Moreover, once in a while will come a summer in which scarcely a pound of surplus honey can be obtained. The downcast bee-man, with no income at all to draw on, must either buy barrels of sugar to feed the bees for their winter food, or

sacrifice a part of them. That is to say, part must be sold for the trifle they will bring, and the money spent in sugar to winter the rest; or else colonies must be united with each other, possibly some destroyed altogether, and what honey there is concentrated in a few hives, to keep a fraction of the apiary alive till spring.

There, now! I've pretty much said it. And there are lots of things on the other side of the shield that I have not tried to say. With all the drawbacks bee-keeping is an intensely fascinating pursuit. Many fail. Some succeed. A very few employ men, and run many apiaries and succeed; bringing up the theoretical possibilities of income pretty high. The conclusion of the whole matter is, that if you have the bee fever, and have it bad, past all cure, don't stand groaning but plunge in — and the editor and his correspondents they'll hold your bonnet.

Richards, Ohio, April 14, 1883.

MULTIPLYING QUEEN CELLS.

By John H. Martin.

As friend Alley's book will be before the public ere long, I wish to give your readers an experiment of my own in the method of multiplying queen cells. My method is probably different from his from the fact that his is successful every time while mine is not so certain; still there are several points favorable in my plan, that would help very much in the absence of any other or better method. I give the experiment for what it is worth, hoping it may be a small link in the chain of progress. About one year ago the idea came to me that if we could dip out larvæ food from a number of cells and deposit it all in one cell with a larva a day or two old, the bees would readily make a queen of it, and we could thus get any number of queen cells at short notice. The question then arose, how shall we get this food, which is in such minute drops, from the bottom of the cell and deposit it again where we want it, in a manner to suit our particular friends, the bees?

The question was answered in a peculiar manner. A member of our family had occasion to call in the services of a physician. The man of pills and powders sat down to deal out his medicines, but instead of powders he produced a bottle of liquid and inserted a peculiar instrument into it and proceeded to measure his liquid in drops. Now, said I to myself, that is just what I want, and explaining the matter to the doctor, he very generously gave me what he called a *doctor's dropper*.

It is a small glass tube with a fine nozzle at one end, and a rubber bulb at the other. Pressure upon the bulb expels the air; now insert the nozzle into the liquid and release the pressure and the tube is immediately filled. A very slight pressure will then cause drops to issue from the nozzle. These in-

struments usually have a curved nozzle which can be straightened in the flame of a lamp.

I soon gave the instrument a trial. I could suck the contents of every cell and deposit the combined contents where there was already a tiny larva. We watched these cells with much solicitude and after the lapse of the proper time found but a few cells accepted and built out by the bees. I then tried taking food from cells already started; the food in these being thick but a small portion could be removed. I could get enough, however, to deposit in cells, but with indifferent success. I found an advantage in some cases in giving cells just started more food, thus making all cells more uniform in size, which could not but help to influence the size and strength of the queen. I was intending to experiment still further during the coming season, but the publication of Bro. Alley's book and a better method will probably lay my plans on the shelf indefinitely.

Hartford, N. Y., April, 1883.

CORRESPONDENCE.

Editor of Am. Apiculturist:

Dear Sir,

Being a New England Yankee myself, and still having a soft spot in my heart for that dearest of all spots, home, I naturally feel an interest in all new enterprises that may start up in that concentrated corner of the U. S.

I should be glad to see a first-class bee journal published in New England, and would gladly use my pen occasionally to help fill its columns, were it not for the fact that the mere mention of bees swarming in February, with all that it implies of warm pleasant weather in mid-winter, yellow jessamine, orange blossoms; no tiresome packing away in cellars or bee-houses and taking out in the spring with fear and trembling, no dysentery, no spring dwindling, etc., etc., seems to set the brains and pens of the denizens of the colder regions at work, and forthwith I am deluged with a shower of letters from "blasted hopers" to whom to reply takes all my spare time for weeks thereafter.

I am no real estate agent, neither am I a boarding-house keeper, so I find after three years of providing stationery, time to write and often stamps, feeding, entertaining, advising and showing about for a day or two, parties that I have never seen and may never see again,—after doing this for three years cheerfully for the good of the state, that my zeal begins to lag and that I have come to dread the effect of writing for a paper. Then, too, I believe that we are getting about as many beekeepers in this immediate neighborhood as I think best to encourage to settle here. However, if you will permit me to write under a blank signature, or adopt the *nom de plume* of Linda Flora, or something of the kind, I will try to give you a few lines once in a while.

Bees commenced to swarm the twentieth of February which is two weeks earlier than usual, and have kept it up ever since, although there is now quite a decrease in the honey flow as is usually the case here in April, and the bees are killing off their drones. Although many of the hives are full, from the bottom

board to the top of second story, of bees and honey. I am now feeding to keep them in good shape to take hold of the next flow which commences about the first of May and lasts until about the tenth of August, when another resting spell comes before starting in on the fall crop. Everything promises well for a big crop of honey for the season.

I do not remember a day during the past winter, that my bees were not flying, and I think some colonies had more honey when they commenced to increase their brood this season, than they had last fall.

To you of the snowy North, who have not seen a bee on the wing for the past hundred or hundred and thirty days, this may seem almost incredible; but to the writer who has not seen a flake of snow for eight years, it has come to be a matter of course, during our glorious February days, to drop into his hammock on the veranda, without coat or vest, and take an after-dinner siesta, lulled to sleep by the hum of the busy bees sipping sweet nectar from the blossoms of the orange trees close by and with a drowsy sense of comfort and content pervading his being as he drops off into dreamland.

All this is very pleasant, but wait until July, and some of the romance is taken out of it by having added, the hum of another insect, the mosquito, which is anything but conducive either to sleep or comfort, accompanied as it is by rather an uncomfortable sensation about the face, hands and neck.

But as this article is for a bee-journal we will say no more about mosquitos, and by the way as I find my sheet nearly full, I will also postpone the rest of the bee talk until next time.

Yours respectfully,

LINDA FLORA.

EDITORIAL DEPARTMENT.

IT may not be uninteresting to our beekeeping friends and readers to know what has induced us to project the publication of a new bee-journal, and to understand what we propose to do.

The science of apiculture is continually advancing, the day of log-gums, box-hives, brimstone, etc., is numbered with the past, and there exists an increasing demand for bee-literature of a more thorough, advanced, scientific and practical nature.

In the past, many of our journals were mere advertisements for some supply business or queen traffic, and as a result self-interest was paramount, and the interest of the bee-keepers secondary.

In view of this, and at the solicitations of some of our most prominent bee-keeping friends, we have decided to enter the field as editor, pledged to work for, and in, the interests of bee-keepers.

Our facilities for doing this are unexcelled, and our list of contributors includes some of the most scientific and practical bee-masters in the country.

We are in no way connected with any supply business or queen traffic; we propose to assume a thoroughly independent position and to maintain the same by pursuing an upright and manly course in conducting the Journal, feeling that only by this can we succeed in doing justice to and benefiting both the advertisers and bee keepers.

While we court candid criticism and deem it an educator and essential to the welfare of apiculture, yet we propose to reserve the right to protect the interests of our advertisers, the opinions and writings of our contributors, and the rights of our subscribers by excluding from our columns any

unkindly or ungentlemanly criticisms, or too personal remarks and articles intended as advertisements, and we feel assured that such a course will meet the hearty approval of every intelligent and thoughtful apiarist.

We shall assist in promoting every laudable enterprise which shall benefit apiculture and the bee-keeper; we intend to keep pace with every advance made in scientific and practical bee-keeping, and propose to experiment largely with this end in view.

We mean that our Journal shall be second to none either in amount of solid, substantial information furnished its readers, or the style in which it is printed. To accomplish this we shall be obliged to depend largely upon our bee-keeping friends for encouragement and support, and trust that, in view of the benefit which must come to them, and for the sake of apiculture itself we shall meet with ready and hearty response.

If we continue to receive the support that has been extended to us up to the present, success will be certain.

We invite candid and fair criticism for our journal, and trust that our readers will suggest improvements or changes whenever they deem it necessary. Remember that the journal is yours, and that the more interest you take in it, and the better you support it, the more fully we can accomplish the work which we have instituted.

We take great pleasure in dedicating the American Apiculturist to the memory of our beloved Quinby (whose name we love to honor) the father of practical apiculture in America; of whom it may truthfully be said, he made the "golden rule" a life-study and a life-practice; the one who so freely gave to his brother bee-keepers the result of a lifetime devoted to the study of practical bee-keeping.

Our heartfelt desire is that our own individuality may be lost sight of in the nobler object of carrying forward the work which he so grandly instituted and we hope and trust that with the hearty coöperation of every apiarist who has the welfare of apiculture at heart, we may invest it with a dignity commensurate to its importance, and be enabled to erect to his memory a monument which shall outlast the coming ages.

BEE NOTES.

We have just passed through a long and severe winter, and heavy losses are reported from many portions of our country, but ere this number of the journal reaches you we shall in all probability have passed the most trying portion of our season. If the weather continues backward and cold, great care should be taken, that the brood-chamber is contracted so that it is crowded with bees night and day and the brood in the outer combs well protected.

It is well to build up weak stocks by supplying them with brood from strong ones, the place thus left vacant being filled with empty comb or foundation. It is better always to contract the brood-chamber in spring and keep every comb well filled with brood, even though you are obliged to resort to stimulative feeding to accomplish this. When feeding for the purpose of stimulating the bees, the feeder should be placed directly over the cluster, and just enough food given to them each night to induce and keep up breeding. This should be continued regularly until the bees can gather honey from the flowers.

Always remember that you must have strong stocks, boiling over

with bees, in order to secure the coming honey harvest and also that every beekeeper in order to succeed should learn to judge of the condition of his bees without disturbing them too frequently.

Every apiarist should have every preparation made for the coming honey harvest in order that he may not be driven with work and be behindhand by and by. Every poor, weak, or feeble queen should be superseded before the honey harvest comes. And here let me state that it is worse than foolish to rear or purchase queens that have been reared carelessly and hatched in a lamp nursery. We are well acquainted with the lamp nursery and know that queens hatched in them are weak and feeble. But remember that the most important work of the month is to build up all of your stocks until they are strong.

BOOK NOTICES AND REVIEWS.

THE HANDY BOOK. — We have just received a copy of the "Beekeeper's Handy Book" from the author and feel pleased to recommend it to our readers as the very best work published on the subject of queen-rearing and an invaluable addition to the library of every progressive beekeeper.

It is a handsome volume of 200 pages, fully illustrated and written in a plain, practical manner, with no attempt (as Mr. Alley says) in the literary line. Its typography and binding are worthy of comment and a credit to the firm that printed it.

Mr. Alley thoroughly understands the subject of queen-rearing, has reduced it to a scientific systematic and practical method, and has freely given to us the benefit of this knowledge in the "Handy Book." We have made this subject a special study for a number of years and never saw or heard of queen-cells being built in rows uniformly and evenly spaced, until we learned it of Mr. Alley and we feel certain that he originated the methods which he teaches.

The work also contains a great deal of general information relative to the subject of beekeeping, not found even in the most recent publications. In fact it is a work that should be placed in the hands of every progressive beekeeper in the country, and is worth many times its cost to the purchaser. It may be purchased of the author (see his advertisement) or at this office, (see club list).

THE BEE-KEEPER'S GUIDE. — The "Manual of the Apiary, or Bee-Keeper's Guide," published by Prof. A. J. Cook of Lansing, Mich., is one of the most complete works upon the subject of apiculture extant and valuable alike to the novice, expert and student. We have just received a copy of the latest edition and take great pleasure in saying that not only has the author maintained the former reputation of his work, but has also added much information that is interesting and valuable. This work should be placed in the library of every apiarist who wishes to succeed in his business or who desires to become acquainted with the nature and habits of the bee. We have made arrangements with the author so that we can add it to our clubbing list at reduced rates or it may be secured of the author.

THE BIBLE BANNER, published at No. 26 South Seventh street, Philadelphia, Pa., is one of the best religious weeklies among our exchanges. Edited by J. D. Brown, with two contributing editors and a large corps of special contributors from different denominations.

We know of no other religious paper in America that treats upon so wide a range of biblical subjects. Independent yet evangelical, critical yet kind, doctrinal yet practical, we commend it without mental reservation.

The CHRISTIAN TRACTS of V. P. Simmons (see advertisement on another page) are vigorous in thought, graceful in language and written in devout candor. We commend them to our readers.

THE QUINBY SMOKER.—We have just received of Mr. L. C. Root samples of each size and variety of the well known and valuable "Quinby Smoker" and we deem it a pleasure to say, that not only has friend Root maintained the former reputation of his smokers but has so improved them that they are superior to any now on the market. The shield is perfection itself.

We prefer the $3\frac{1}{2}$ and $2\frac{1}{2}$ inch and find that the "Jumbo" is just the thing for large apiaries; giving a large volume of smoke and that without being clumsy or unwieldy.

We can most cheerfully recommend them to our readers, as the *best*.

MRS. LIZZIE COTTON. — Some of our beekeeping friends have made inquiries of us, regarding Mrs. Lizzie Cotton and her new circular. We have examined her price list and work on beekeeping, and feel that not only are they worthless but also an injury to the interest of apiculture.

It is perhaps unnecessary to quote from her work, but we would warn our readers to beware of one who calls bee journals, associations, conventions, and in fact every thing excepting her work, controllable hive, and system of management, "humbugs, trash, etc.," and this from one whose advertisement no bee journal will accept.

The claims that she makes for her controllable hive and method of beekeeping are both absurd and preposterous. Her work is entirely worthless regarding advancement in beekeeping and tends to lead the novice astray. Not only does she contradict her own assertions, but also offers inducements which favor and promote the adulteration of honey. We would advise our readers to be careful how they deal with her.

NOTES AND QUERIES.

We have been obliged to add to our journal four more pages than we originally intended and even now are under the necessity of leaving over several articles for the June number. If our bee keeping friends respond heartily and give us a subscription list which will warrant, we shall continue with twenty-four pages.

We would call especial attention to Mr. House's article on "System," and should be pleased to hear from others on the subject of coöperation.

Please read the sample copy of the journal carefully and send us your opinion regarding it. Any interesting bee notes will be thankfully received.

Please notice our club rates and take advantage of our liberal offers to subscribers by sending yours in *at once*, and remember to write your address, including name, state and county, *very plainly*.

Those persons whose names appear in the advertisers' directory will please notice that their cards are inserted in this number free; and if they wish them continued at the stated prices they will please reply *at once*.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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All communications should be addressed to S. M. LOCKE, Salem, Mass.

PLAIN TALK ON BEE-CULTURE.

BY J. E. POND.

II.

INCREASE IN APIARY.

How can I best increase my apiary, while working for surplus comb honey? is a question that is often asked, and one which it is exceedingly difficult to answer. It is generally understood that in order to obtain the largest yield of surplus, no increase whatever should be allowed; for the rule is, that one strong colony, if not allowed to swarm, will gather more stores, than the same colony and its increase would if a swarm were allowed to issue. If an apiary is run for surplus comb honey, it is a matter of great difficulty to prevent swarming; and at times the apiarist, who allows his bees to swarm naturally, becomes almost if not quite discouraged, at seeing swarm after swarm issue, and thus destroy his chance of obtaining even a fair crop, while he is powerless to prevent it. If, on the other hand, the apiary is being worked for extracted honey, it becomes comparatively easy to control, if not entirely to prevent natural swarming, and thus to obtain a large crop of surplus; and this by keeping the whole force of the colony constantly at work.

In order to understand fully the difficulties I have just hinted at, and learn how to overcome them, it is necessary to know something of the nature and habits of the honey-bee. It is generally understood, I think, that swarming is caused by the hive becoming overcrowded with bees, brood and stores; and that a portion of the colony, in consequence thereof, is forced to leave in search of a new home, in order that comfort may be maintained in the home they leave. Swarming, too, is the natural means of perpetuating the species, and to a certain extent must be allowed, else the race will become extinct. There are other reasons why swarms issue, such as giving the queen a brief period of rest, and giving us a larger yield of comb for wax, but the above are sufficient for the purposes of the present article;

and I will now indicate, so far as I can, what I deem to be the correct answer to the question which heads this article.

If the overcrowded condition of the hive is a principal cause of swarming (as it undoubtedly is), then the remedy would seem to be, to give more room, either by enlarging the brood-chamber, or by removing one or more frames of brood or stores; to a certain extent, this is the proper remedy, and by use of the extractor it becomes a very simple matter, but in endeavoring to obtain surplus comb honey, it becomes much more complicated.

My own business is such that I am absent from my apiary during the daytime, and as my bees have not yet learned to swarm by moonlight, this absence has, in days past, caused me considerable trouble. For the past three or four years, however, I have made use of a method which entirely prevents swarming, and is so far a success in that direction, that I have no fears of any stock swarming out during my absence, even though at work storing surplus in sections.

This method, which I call the nucleus plan of making swarms, is as follows: about the first of June, or as soon as the bees show symptoms of being affected with the swarming fever, I take a frame or two of brood from each strong colony (being careful not to take the queen) and place them in one or more new hives (depending upon the number of colonies I have), filling their places with empty comb or foundation. I then remove another strong colony to a new stand, set the new hive in its place and introduce a queen. I purchase my queens as I can do so cheaper than I can rear them. If I were rearing my own queens, I should make preparations accordingly, and refer any who are desirous of learning the best method of rearing queens, to read Henry Alley's new work, "The Bee-keeper's Handy Book," where the whole question is fully discussed, and particular instructions given in detail.

In a few days the nuclei formed as above will become strong colonies, and as many more as we choose can be made in the same manner. By making use of the above method, natural swarming is prevented, good, healthy, strong colonies are obtained, and the working force of the old colonies are not depleted or injured. Natural swarming prevents the gathering of a large amount of honey, as it takes a large number of foragers from the hive; while the occasional taking of a frame of brood in no-wise lessens the working force of the colony. The empty comb or foundation with which the frame of brood is replaced is immediately filled with eggs by the queen, and thus the working force of the colony is kept supplied, and that without injuring its honey-gathering qualities. The amount of increase to be made in an apiary, by the means I have described, can only be determined by the amount of honey yield, the number of stocks, and their individual strength, and consequently must

be made an individual question with each beekeeper.

To obtain the best results constant watchfulness and care are required, the exact condition of each colony constantly kept in mind, and the queen not allowed to slack up in laying, for the chief factor is the prolificness of the queen. Some apiarists may say, that if we force the powers of the queen too severely, we shall wear her out ere she reaches what is ordinarily considered her prime. To this objection my answer is, the only use we have for a queen is to keep up the strength of the colony, and provide for future increase, and if she lays her complement of eggs in one season, we get as much benefit from her by the plan I describe, as though she had not been pushed as hard, and had taken three years to lay the same number of eggs.

The use of this method of increasing the number of colonies is identical with that of using an extractor to keep the comb emptied as fast as it is filled, and prevents natural swarms from issuing, by giving empty comb for the queen to fill; the practical results are nearly the same, save that with the extractor we obtain no increase of colonies, and sacrifice the enlargement of our apiary to the attempt to obtain a large yield of surplus.

I hope the method I have described will be fully tried, and reported upon, and also if any one thinks he has a better, that he will at once present it to the fraternity.

Foxboro, May 16, 1883.

A PHYSIOLOGICAL ANOMALY.

By A. J. Cook.

The wings of the queen bee, like those of all bees and most other insects, are four in number; two anterior or primary, and two posterior or secondary, which are smaller than the anterior ones. The anatomical structure of these organs is likewise the same in all insects. A set of double tubes, one within the other, serve as a framework on which is spread the transparent part of the wing. The inner tube carries the aërial food, oxygen, and the outer one serves as the blood conduit. All nourishment, whether from the blood or air tubes, reaches the membrane by the slow process of absorption. Here then, as with our own cartilages and outer skin, nutrition is languid.

The wings are moved by powerful muscles massed in rounded form, very compactly, in the thorax. These muscles are striated, the same as are the voluntary muscles of all higher animals, but they are not surrounded by fascia.

We see then that the queen's organs of flight are very similar, structurally and functionally, to the organs of higher animals. Hence we should suppose that any law that held among the latter would be as strictly true of the former. It is a generally recognized truth, that any organ or tissue is only strong as it is used. Indolence means atrophy. He

who uses his brain but little has but little to use. The sedentary man is always weak, and physically inefficient. The horse that has stood in the barn without any exercise for weeks, is denominated "soft" and is not fit for hard muscular effort.

A horse is lame in the foot. Certain muscles of the shoulder, now in disuse, sink away and the pseudo-veterinarian treats him for the so-called swinney. This is only an atrophy of the muscles, consequent upon disuse, and no disease in itself.

Now the queen bee, after her "marriage flight"—which occurs very soon after her maturity—does not use her organs of flight at all for a year, or till she leads a swarm from the hive, when, with the majority of the bees, she goes forth, and by use of muscles, long in disuse, she rapidly wings her way over meadow and woodland, sometimes for miles, before she and her attendants reach the new home, already preëmpted. Here then is an anomaly, which, so far as I know, finds no parallel among animals.

True, some contend that the queen does take recreation trips in the interims of swarming and mating tours; but such assertions are mere conjectures.

Among some other of the social Hymenoptera, there is a less striking illustration of the same curious fact. The queen bumble bee, however, does much work, which the queen honey bee leaves wholly to the workers. Early in the season she does all the gathering. It is not probable either that she indulges in many, if any, long flights, after she settles down to exclusive egg-laying.

We see from the above that clipping the queen's wing is no injury to her; in fact it is an infinitesimal gain, as there is a little less tissue to nourish, and that a perfectly useless part except as the queen may need it to fly forth with a swarm.

Whether then we should clip or not should depend entirely upon our own ideas of its wisdom as regards ease of manipulation, convenience and, possibly, our notions of beauty.

The ants which, as Lubbock shows, are intellectually equal to the highest of animals, in some respects, are not deterred by æsthetic notions in this matter, but are urged on by motives of policy. The worker ants clip the wings of their queens. I would say "go to the ant thou" apiarist, "consider her ways."

OVERSTOCKING.

By P. H. Elwood.

The range of the honey bees' flight is limited. The number of honey-producing flowers within that range is also limited as well as the capacity of the flowers to secrete honey. Granting these assertions, overstocking becomes a possibility. Does this possibility ever become a fact? Let us examine the subject

a little. First, how far do bees fly? Not what is the extent of their flight under peculiarly favorable circumstances, as for instance, when they are following a receding honey-flow on higher land, but how far do they fly on the average profitably in quest of surplus honey? If we permit those of most ample experience to answer, they will tell us that forage must be within two miles of the hive in order to secure much gain in the surplus apartments of the same, and that it will be most profitable to have it within one and a half miles. Then we may place our apiaries three miles apart, giving to each one the pasturage of nine square miles or about six thousand acres. I believe Mr. Quinby preferred to place his yards no nearer than this and thought about sixty colonies in each apiary gave the best results. I notice L. C. Root places a still smaller number in many of his yards. Adam Grimm noticed that when as many as one hundred stocks were kept in a place, there was a diminution in the number of swarms, and that less surplus honey was made per colony. He concludes by saying that "if not more than fifty colonies are kept in a place and the yards are placed three miles apart there will be no danger of overstocking in ordinary seasons." These are spring numbers and it will be remembered that all of the authorities quoted were in good localities.

If fifty stocks are kept in a place and the number doubled it will require twenty-five hundred pounds of honey for their winter stores; nearly double this or five thousand pounds for brood-rearing and summer consumption. Therefore about four tons of honey will have to be gathered before any surplus can be stored. A yield of twenty-five pounds surplus per swarm, old and young, will require twenty-five hundred pounds more, or a total of ten thousand pounds. This is on the supposition that the comb is already built in which to store the honey. If comb foundation is furnished instead, we will consent to call it one-half more, or a total of eleven and a quarter thousand pounds. If the bees have to construct the whole comb, unless the hives contain too small a quantity of old bees in proportion to young, we shall have to double the first amount, making a total of twelve and a quarter thousand (12,250) for a surplus of twenty-five pounds of comb-honey per hive. In the above I have purposely made a liberal estimate of honey consumed in the hive, but even then it figures up but little over two pounds of ripened honey per acre; while many an acre will not contribute a pound of honey it may still be granted that in the average season many more pounds will be produced than gathered. What is the objection then to stocking heavier and permitting less to go to waste. The period of greatest scarcity in most sections is in the spring. A honey dearth then is detrimental to brood-rearing, and is felt through the whole season. Feeding may be resorted to, but it was demonstrated last

spring that nothing but natural resources or fresh honey and pollen from the flowers will stimulate sufficiently. I do not refer to early feeding, now abandoned by most beekeepers, but to stimulating after the first brood hatches when brood should be reared most abundantly. Again, if the field be overstocked in the fall, brood-rearing ceases too early, and it is the belief of many that this is one drawback to successful wintering. It is very certain that artificial feed at this season of the year will not take the place of natural supplies for securing brood. Then, again, when crowded on a range, even in flush times, bees lose much time in searching for honey from flower to flower when they have already been emptied and they will even condescend at such times to gather honey before it is sufficiently ripened in the flowers as well as other poor honey, including aphis honey and honey dew, all of which injures the quality of surplus and winter stores, making it almost impossible to winter bees under such conditions.

It may be asked what proof we have that bees gather too thin a honey and such is not sufficiently evaporated in the hive after being gathered. I answer that the proof is found in honey gathered in wet seasons which is still thin after being sealed. Sugar may be substituted for honey in wintering, but it is a Herculean task to extract and feed after honey gathering ceases, and after a little experience in feeding Prussian blue, grape sugar, white earth, and the other adulterants of sugar, it may be concluded that poor honey is even safer than this. It will be found that a guarantee of purity does not always imply purity. This last winter I observed bees to drop down by the quart as if poisoned, in a few sugar-fed swarms, and I noticed in the fall that it took much less water to melt up some sugar guaranteed to be pure than it did of another brand containing no such guarantee. It is certain that grape sugar takes little water to melt it. We may, therefore, reasonably conclude that it is easy to overstock a range, and that overstocking often means not only the loss of surplus honey, but also the loss of the bees as well. It might be well to notice in this connection the subject of artificial pasturage and its effect on the welfare of both bees and beekeeper, but this article has already grown too long and I will not tax your patience further.

Starkville, N. Y., May 26, 1883.

BEE-CULTURE IN THE SOUTH.

By G. W. DEMAREE.

I.

While Dame Nature is wonderfully accommodating in her ways, her economy is of the most unswerving character.

Where she gives short and fitful winters, she gives, in turn, long and parching summers with their con-

comitant vexatious plagues and inconveniences. And *vice versa*, when her winters are long and dreary, she compensates the dreary part, with a short but gloriously spring-like summer, accompanied by soft balmy air which laves the blushing flowers and allures the precious nectar to fill their tiny cups, and inspires the busy bees to "double diligence."

A long and careful study of all the features applicable to the science of apiculture will convince the student that nature is more nearly balanced in her favors bestowed on her subjects than he is willing to admit, before the investigation has removed the scales from his eyes. It is well to bear in mind that there is no paradise for the honey bee, any more than there is an earthly paradise for man, since the "earth was cursed for man's sake." No matter how favorable your surroundings may be, or the circumstances under which you operate, close study, and hard, incessant toil is the "polar star" of success in bee-culture. "Bee-culture in the south" is too large a theme for a single article, hence I must reserve much interesting matter connected therewith for a future occasion.

Taking all things into consideration, I am of the impression that a medium climate such as may be enjoyed in Kentucky, Tennessee, Virginia, southern Missouri, northern Arkansas and other like geographical positions are peculiarly adapted to the culture of the honey bee, and the production of honey. While more extreme climates either north or south may give greater yields of honey at times, this advantage is more than overbalanced by disastrous wintering in the north, and on the other hand by parching drought, which is little less destructive to the bee interest, in the extreme south. For one I prefer a more steady series of results; even though they be small in detail they "pan out" well in the long run.

In my judgment any location where forty or fifty pounds of comb honey, or sixty or seventy pounds of extracted, can be obtained by skilful management, on the average, from a large apiary, and where there is no "fussing" about "wintering bees," and consequently no loss on that account, and where but little or no expensive feeding is necessary, and no dread anxiety to wear the spirit of the apiarist, — well, such is my idea of a good location for the culture of the honey bee, and hundreds of just such localities can be found in Kentucky and the states before mentioned.

I have often noticed that the southern people are a little slow to take hold of new things — bee-culture as a science is comparatively a new thing — nevertheless there are to be found in the south some as thoroughly posted apiarists as can be found on the globe, and though they make but little noise as they work silently on, they are rapidly developing the bee interest in their respective localities, and doubtless many of them will live to see bee-culture as a business take its place

along with other rural industries in the south. "Bee-culture in the south," in its management and methods employed, differs as much from its proper management in the north, as does the farming interest of the two localities differ in management. In fact different localities require different management, though they be situated but a few miles apart and in the same climate.

It required years of experience on my part to comprehend fully this essential fact with no ordinary library of bee literature at my command. It is a matter that must be learned by actual experience, though the tuition be ever so high in that "school." Experience has taught me that hundreds of colonies are likely to be ruined for the season, in Kentucky, during the month of May, by what is properly termed "crowding out the queens." This critical state of things is brought about by a brisk flow of honey from the black locust, and poplar in some locations, which induces the bees to crowd the brood chambers with a perfect glitter of the precious nectar, and this at a time that increase of working force is essential to prepare the colonies for the approaching white clover harvest. While this critical period on which the future usefulness of the colony depends is difficult enough to manage, the extra honey goes far to appease the apiarist. It is the evil results which follow that are the hardest to deal with. For when the queens regain their liberty to ply their vocation of egg-laying, excessive breeding is the legitimate result of the impatient delay, and a host of active workers will appear on the scene of action just a little "too late," only to be consumers.

I have had this matter under investigation for several years, and will give my method of management in a future article.

Christiansburg, Ky.

MARKETING EXTRACTED HONEY.

By D. A. Jones.

This is a subject in which considerably more interest should be taken, as it has much to do with success or failure in apiculture. If, after the apiarist has struggled hard throughout the summer to secure a large crop of honey, he attempts to place it on the market, and finds the price so low and sales so slow, that no profits are to be realized and very poor remuneration is received for his labor, he loses interest in the business and looks around for some more profitable occupation — perhaps leaving the pursuit in disgust. If, on the other hand, he sells his crop rapidly, and at good figures, realizing handsome profits, he becomes exceedingly enthusiastic, and not only extends *his own* business, but others, seeing his success, also embark in the fascinating pursuit — and thus our numbers are increased.

The great evil in connection with the marketing of honey is the

manner in which the small, uneducated beekeeper places his crop before the public. Not knowing its value, he places it on the market in such unsalable shape and in the hands of dealers whose knowledge of the trade and its requirements are as limited as his own, and who will not pay more than two-thirds value for it, besides thinking it a hardship to have to buy it at any price.

A change is, however, coming over matters, and instead of our having to seek a market, we are being sought after, and are being offered far more at wholesale than we formerly received at retail. Why this great change?

It is being brought about by the plan of exhibiting at fairs and exhibitions, hundreds, thousands, and tens of thousands of pounds of honey, in such attractive shapes that visitors are amazed at the mountains of honey; this department becomes one of the leading attractions of the exhibition, and the honey is largely purchased by the visitors and taken home as one of the "big" features.

No one would think of taking honey to an exhibition to compete for prizes in milk-pans, buckets, etc., then why take it to market in any other than the best shape? There the competition is even greater, for besides having to compete against other honey, it has to compete against every other imaginable mixture that man can devise, many of them unhealthy, poisonous mixtures, composed largely of glucose, and better adapted to sap vigor and life from the human frame, and fill our cemeteries with premature graves, rather than be a luxury on our tables. Now, if this vile stuff were not placed on the market in a more attractive form, would it take the place of honey?

Are our beekeepers going to slumber? Are they less intelligent?

Can they not invent as attractive packages, packages as suitable in size, and as well adapted to the requirements of the trade?

Can they not devise as attractive labels?

Can they not devise a plan of placing the honey on the shelves of the retailer, and on their counters, so that it will appear to better advantage than any other goods in the store? The goods that present the finest appearance on the shelves, and are the most pleasing to the eye, are the ones which will sell the most rapidly. Every merchant wants his place of business to outshine that of his neighbor, and the brighter and more attractive his display, the better he will be able to obtain his end.

By our putting up honey in packages, ranging as follows: 2 oz., 4 oz., 8 oz., 1 lb., 2½ lbs. and five lbs., they come within the reach of all, the smaller sizes are purchased by children, instead of confectionery, and these advertise the larger, increasing their sale tenfold.

A uniform size of package is also very desirable; after placing the honey in tins, label them, enclose each in a wrapper to prevent the labels from chaffing or being injured in appearance, and then

place them in neat cases ready for shipment in the following sizes:—

12 tins	5	pounds	makes	a	case	of	60lb. 1 doz.
24 "	2½	"	"	"	"	"	60lb. 2 doz.
60 "	1	"	"	"	"	"	60lb. 5 doz.
120 "	½	"	"	"	"	"	60lb. 10 doz.
240 "	¼	"	"	"	"	"	60lb. 20 doz.
480 "	⅛	"	"	"	"	"	60lb. 40 doz.

Packages of half the above quantities could be handled advantageously.

The wholesale merchant may then purchase as many cases and half-cases as he may require, and his travellers will carry samples, and dispose of it in the same manner as they do all other canned goods, to the retailer. In this way tons of honey are disposed of to merchants in out-of-the-way places, which we should not otherwise reach. Why is honey not found, as are all other canned goods, in our mining districts, in the camps of our soldiers, in the new states and territories, in the new towns along our newly constructed railroads, and in thousands of other places in America, where it could be sold with profit to both producer and consumer? When shall we learn to supply our own market with our own products, instead of allowing foreign goods to take their place, and forcing us to seek a foreign market with smaller profits?

If this system be properly carried out, honey enough cannot be raised in America to supply the demand. —*From the World.*

Beeton, Ont., Can.

THE QUEEN'S SPEECH.

By John H. Martin.

Every apiarist has heard a queen's speech, and he knows that the subjects of said queen, like the willing subjects of Victoria, give heed to the speech, though it may be uttered in monosyllables.

If it be a cry of distress thousands of subjects immediately thrust forth their poison-tipped swords for her defence.

Her royal highness of the hive has some qualities given her that the proudest sovereign never had, *i. e.*, the gift of speech before she is born.

Every observant beekeeper will notice that in the height of the swarming season the young queen will hoarsely challenge her rival while yet locked in her virgin cell.

After our queen has come forth into the busy world she frequently gives forth an utterance of fear, especially if introduced to a new place with a brilliant retinue of strange subjects around her. At such times she will cling to the walls of her new home and utter a plaintive cry that would touch a heart of stone; but the reception committee have no hearts except for those who are introduced through the usual court ceremonies, and unless the introduction is in accordance with this red tape, she is mercilessly killed and cast out of the palace.

When our virgin sallies forth to meet her lover, her speech is soft and wooing, she sings of the beau-

tiful sunshine and of flowers; the speech of the drone lover is coarse and uncouth beside it. Their trysting place is upon the balmy breeze, and never was a lover enticed by a more siren tongue, for one embrace of that beautiful form leaves our rash lover in the throes of death.

Should our queen and her subjects decide upon an expedition to foreign parts, the settlement of a new country, and the building up of a new empire, how proudly she marches forth! how loudly she calls the roaring, shouting thousands around her in mid-air, as with huzzahs they charge across the plain!

The public speeches of our queen, like the royalty of England, are only upon great occasions; but of the private speeches, who knows anything about them? In the centre of that mysterious realm, either at rest or at her arduous household duties, surrounded by faithful subjects who attend to her every want, who feed her when hungry, who defend her when in danger, who embrace her in crowds when cold, — is there no speech so low that it is not understood by her subjects but which cannot reach the human ear. The microphone tells us that the common fly trumpets for its mate; why may not our queen have a similar way of expressing her needs?

Let us then study the speeches of our queen; perhaps we shall find more in them than the mind of man has ever dreamed.

Hartford, N. Y., May 14, 1883.

ARTIFICIAL PASTURAGE FOR BEES.

By C. M. Woolver.

Beekeepers who are permanently located are seeing the need, more especially with each unproductive year, of furnishing their bees with artificial pasturage. Their first inquiry is, What shall I plant or sow that will make up for the loss in poor seasons? For a moderate and continuous flow of nectar, I would suggest catnip, motherwort and other plants that bloom for long periods. But for a flow of nectar as large as or larger than that which the basswood tree furnishes, Alsyke clover takes the lead. It should be sown every year; it gives its largest yield of nectar the second year, and to get the best results the apiarist should have a crop in its prime for every year. As it comes in bloom in advance of basswood, it does not interfere with that crop. While it is a paying crop for honey, it pays quite well for a seed crop, and after the seed is taken out it is very good fodder for stock.

The season of 1881 I had twenty-seven colonies of bees that had access to eighteen acres of Alsyke clover. I extracted over 150 lbs. per colony before basswood came in bloom, which was superior to basswood honey. The clover was threshed and the yield of seed was over four bushels per acre.

Richfield Spa, N. Y.,
April 16, 1883.

A BEE TOUR.

By Arthur Todd.

There has lately been published a book entitled "The Bee-Keeper's Handy Book, or Twenty-two years' experience in Queen-rearing," by Mr. Henry Alley, of Wenham, Mass., a few miles north of Boston. I had heard much of this gentleman and his method, but was anxious if possible (in addition to adding his experience in the shape of the book to our library) to inspect personally some of his queen-rearing hives, get a couple of them, and test his methods after the arrival of the queen bees we are expecting from Italy.

Mr. Alley received me very kindly but regretted the impossibility of showing me anything, as owing to the very late season, and continued cold weather, he had been obliged to delay his rearing operations, and told me he should be forced, in consequence of the weather, to disappoint many customers. I was cordially invited to spend a day with him later on when he would give me a full insight into his methods. He kindly drove me from his place to Salem, Mass., where he introduced me to his friend, Mr. Silas M. Locke, an enthusiastic apiculturist, whom I found busy correcting the first proof sheets of a new Bee Journal entitled "The American Apiculturist," the very first copy of which he presented to me. Mr. Locke was formerly engaged with Mr. Jones of Canada in queen-rearing, and was the first to breed and handle Holy Land and Cyprian queen bees from the queens of those breeds brought over by Mr. Jones at great expense. He showed me—preserved in alcohol—some specimens of Holy Lands, Cyprians, and their crossings.

Mr. Locke and Mr. Alley went into a long discussion with me in reference to the various points of excellence of the different races, their points of distinction externally, etc., etc.

I was shown the beautiful golden shield that all pure Cyprians have between the wings on the thorax, a distinctive feature well worth remembering.

The Holy Land bees have like the Cyprians the golden shield between the wings on the thorax, and a mark like a black half moon with a covering of hair lighter in color, but thicker than upon either Cyprians or Italians.

Mr. Locke is making experiments now upon crosses of the various races, and he looks for the very best results from a cross between the young queens of our best American Italians and Holy Land drones, with perhaps a mixture of German blood.

I must refer my hearers to the admirable descriptions of the various races, and remarks thereon by Mr. Locke, which are contained in Mr. Alley's book, a copy of which I obtained, and is now added to our library; a copy of the new Journal is also subscribed for and is already in circulation.

I left Mr. Alley and Mr. Locke

with the hope that I may soon be able to take advantage of their kind invitation to spend a day with them among the bees.

An important feature of Mr. Alley's book is an article entitled "Management of the Apiary," written by Mr. George W. House, who resides near Syracuse, New York.

With an introduction from Mr. Alley and Mr. Locke, I was cordially welcomed by Mr. House and his father, the latter a beekeeper of some thirty years' experience. Mr. G. W. House is the Secretary of the Northeastern Beekeepers Association, and thoroughly posted in everything pertaining to advanced apiculture. The season in northern New York has been very late, cold rains and windy. Consequently I found all his bees still in their winter packings. He allows the hives to remain in the open field but packs all around the hive with straw which effectually preserves them. Mr. House runs some 300 to 400 stocks kept at various bee yards in a radius of ten miles. His honey house was well stored with labor-saving tools for making hives and boxes, etc., etc. Quite a number of boxes were already filled with foundation to run on, as soon as the season opened. We discussed the merits of various kinds of foundation, Mr. House giving the preference to a new make with heavy high side walls, and very thin base to the cells.

So far north he does not approve of the Langstroth hive for working as an all-the-year-round hive, preferring a deeper and squarer frame. The hive he runs seems to me the embodiment of my own ideas of a good harvesting and wintering hive, capable of working boxes in the body of the hive or on the top as desired. A frame of brood can readily be suspended in the top story to entice the bees up into the boxes, which to those desiring to obtain box honey worked as early as possible is a point well worth knowing, and seldom if ever fails.

Mr. House's location is a good one for bees, a constant succession of bloom from fruit trees and shrubs. In addition plenty of basswood all around that country. I read him a letter I had lately received from one of my friends in France, a noted scientific beekeeper, wherein he states that although he has hundreds of basswood trees around his apiary he does not count on them for a pound of honey. The contrast is great to America where basswood is a splendid source of honey, and, as Mr. House said, "hardly to be spared."

Another beekeeper of note to whom Mr. Locke gave me an introduction is Mr. Julius Hoffman of Fort Plain. When I visited him I was unfortunate in not having bee weather; a cold rain storm destroyed the hopes of a lovely forenoon, so I was deprived of the pleasure of any very great fooling around the hives, but what little I saw of his bee yard was sufficient to make me desire a visit in good honey-gathering times. This gen-

tleman runs some 400 hives this year, and all for box honey. Last year was a most unfavorable one, only giving him an average of 29 lbs. per colony, whereas in good honey years he can obtain an average of 60 lbs. to 80 lbs. per colony.

Mr. Hoffman works on the system of suppression of the queen during the time of the greatest honey flow — each queen being caught and caged for a certain period of time.

When the season for buckwheat flowering comes on he packs his colonies on a wagon, and moves them to its neighborhood, following the old German and French migration system. A pleasant time was passed discussing the various breeds of bees, Mr. H. for many reasons preferring a strain of bees he imported at great expense from the Caucasus mountains in Asia. These bees, he claims, make whiter comb honey than any other race, besides wintering well, breeding fast, etc. Mr. Hoffmann is the inventor of the "Hoffmann Frame," which has shoulders to it so that the frames once placed alongside each other are at once properly spaced, and in moving on wagon or cars cannot jolt one against another.

The location of Mr. H.'s house is very pretty, perched on one side of a valley that must be simply lovely in summer. The terraced garden stretching away in the rear of the house showed hives everywhere, even on the roof. I was most cordially received, and hospitably entertained by him and his queen bee Mrs. Hoffman. In the case of Mrs. Hoffman, the work carried on in the home hive was slightly altered from that carried on in the bee hive, for instead of being fed, and waited upon, it seemed to me that Mr. H's queen bee lived only to feed, and tend her little bees and care for the stranger within her gates.

A few days after this very pleasant visit, business brought me to Canandaigua. The trains being run at awkward intervals, and having finished my business, I found I had to wait from four P. M. to ten P. M. for a train. Chatting with a merchant I asked if any beekeepers were near. I was told there was one in an extensive way, only a mile or so out of town. I decided to fill in the time by calling upon him. Walking there I met the gentleman, Mr. Soden, in his field, and he most kindly welcomed me.

His colonies and honey house stood in the open field, and formed quite a pretty sight. All the colonies were still in their winter packing of cut straw. Some were opened to show me the method of packing adopted. In this case the Quinby frame and hive are used and with the packing, form practically a chaff hive.

The bees in these hives had come through the winter well.

Mr. Soden farms some twenty acres, runs now about one hundred and fifty hives, and all for comb honey. Formerly he used to have a bee yard quite close to the town, and surrounded by villa residences,

whose occupants had certain days for the family wash.

The wet clothes hung up in the gardens formed a delightful crawling ground for those bees sent out in search of liquid refreshment. They invariably left remembrances behind them in the shape of certain well defined yellow marks, and to the good housewife these were so annoying, that complaints became so strong and frequent, that Mr. Soden had to rent his present location, and remove the bees from the vicinity of the moist attractions.

I enquired particularly as to the yield of honey capable of being obtained by him in that section of northern New York. Of comb honey in 1 lb. boxes, Mr. Soden has harvested three and one-half tons from one hundred and twenty colonies. He finds the average in general for Italians is 100 lbs. per colony and for blacks 80 lbs.

In 1882, the bad year, he had one ton from 100 colonies and had forty per cent increase as well.

Double these figures would be a fair quantity to allow if he went in for extracted honey.

His entire crop last year was sold before it was taken off the hives.

Mr. Soden has a complete bee library, a honey house well stocked with tools, and carefully arranged for the storage of comb honey. Having some Cyprian and Holy Land colonies, he purposes carefully testing their merits this year.

The evening proving stormy and wet, Mr. Soden induced me to stay and accept the hospitality of his queen bee; and amid torrents of rain, his buggy safely conveyed me to the depot, after a very interesting visit.

Nearer home I have visited Mr. Dansen Baker of Claymont, Del., who runs some thirty-six colonies and is a very successful apiarist. From him I learned his observations upon the location for pollen in the hive; he having noticed that when the combs run across the entrance (so called warm frames) the pollen is stored close to the entrance, and the honey always in the rear of the hive.

Running his hives accordingly, he can always get boxes nicely filled in the body of the hive, by putting them at the rear end.

In the course of my visits, I introduced myself always as your Vice President and extended an invitation to our friends to join us in our deliberations any meeting night when they found themselves in Philadelphia.

I need hardly say that I know you will endorse my action, and I think that a vote of thanks will be in order to those beekeepers who so cordially extended courtesies and hospitality to me on my recent tour.

Philadelphia, June 13, 1883.

CORRESPONDENCE.

Editor of Am. Apiculturist:

To-day I commenced my extracting for the season and took up some five hundred pounds of as heavy honey as I ever saw, but as there is considerable dark winter

honey still left in the combs, my first round will give a darker honey than what I shall get after they have all been extracted once. I know of parties within forty miles of here that had taken up several barrels three or four weeks ago, but in this location I never take any of the early crop as the honey drought in April may run the bees short if I do.

I shall continue to extract Monday, and expect to keep it up with short intervals between, until about the tenth of August, when I hope to have most of my forty new forty-gallon cypress barrels filled, marked and ready to ship. Some one in this state asked in one of the late bee journals, what he should do for barrels. I can tell him in a few words what it has cost me hundreds of dollars to find out. Do *not* use *oak* barrels. They will keep shrinking in this climate, after the honey is put into them, until it is impossible to keep them tight.

Our own cypress which grows in such abundance and to such immense size in this state, is equalled by few woods and surpassed by none as material for honey barrels. Get some good cooper to make your barrels of well seasoned cypress, with a capacity of forty gallons. Have the staves and heads made about half as thick again as for syrup, hoop well with inch and a half iron, plug up the "blow-off hole" and bore an inch hole on the opposite side of one of the heads, wax well inside to prevent leakage and absorption by the honey or a flavor from the wood, fill at the inch hole, dip the inner end of your plug in hot wax, lay a cloth over the hole and drive the plug tight, but not tight enough to split the head; put a piece of tin over the plug, tack it firmly, set the barrel aside for ten days or more or until ready to ship, then drive up the hoops tight and put several double pointed tacks behind them to keep them from slipping off, and your honey will go safe wherever it is sent, if properly handled. Some may prefer to bore a bung hole and fill the barrel at it, but I find that from one cause or another the honey often gets spilled and if filling at the bung, it runs down the side making a bad mess on the barrel and on the floor besides wasting more or less, while if spilled on the head, it all stays there and can be run into the barrel, or taken up.

Respectfully yours,

LINDA FLORA.

Florida, May 19, 1883.

Editor of Am. Apiculturist:

Dear Sir,

I HAVE read the article on "System" in your May number by Mr. Geo. W. House with a great deal of interest, and the same thought regarding bee supplies and market reports has often struck me. As a beginner in beekeeping I will confess here, heterodox though it may be, that if you take from beekeeping its profits it loses for me its greatest charm. I am going to keep bees for the money there is in the business and not for any sentiment in the matter at all. I therefore desire to see how the markets go, and how best I can dispose of my honey, and would suggest a page or so devoted to this point, and let every honey market of any importance in the United States be reported. Bee-men need to combine to get good prices as well as other people, and the best way to make a market and at the same time keep prices up should be discussed. The second point as to why it is that so many beekeepers go into the supply business has occurred to me. The many I have run across seem to

think more of getting out supplies than of apiculture itself. These men, therefore, encourage beginners in starting all they can, as the latter get their supplies from the supply-men and thus give them a living, in addition to, or independent of, legitimate beekeeping; and where these supply-men publish journals, of course it is one more business. But I can see how all this may cause beekeepers proper to be misled a great deal, and as I have already in my little life been "left" as often as I desire to be, I second the suggestion of Mr. House on this point "by acclamation."

LONE STAR.

EDITORIAL DEPARTMENT.

WE have been greatly encouraged since our May number was issued, by the hearty responses of our beekeeping friends and "yet there is room." Let all beekeepers who wish to see a live independent journal published in which their interests may be represented, send in their subscriptions and induce as many of their neighbors to subscribe as possible; also please send us the names (plainly written) of all the beekeepers in your locality.

We propose to open a question drawer in the July number, and while we may be competent to answer all general questions yet we are aware that many beekeepers have questions which they desire should be answered by some particular apiarist, hence we will publish any questions which you may ask and see that they are answered by the persons questioned. We particularly request questions upon Alley's new method of queen-rearing, as we are deeply interested in the propagation of the races. We have completed arrangements by which we shall be able to present our readers with a photograph of Mr. Alley, and a description of his apiary. Do not fail to notice our club list, you will never see an opportunity to obtain first-class goods at greater reductions. Please let us know how you like the journal and send us all the interesting matters that you can regarding bee-culture.

BEE NOTES.

THE cool and backward spring at last has given place to the genial breath of summer, and the bees are at work storing the first crop of surplus honey. We will presume that ere this, you have equalized your stocks and that they now are all strong and well supplied with bees. In supplying them with surplus room great care should be taken to give them just what they need and no more. Mr. L. C. Root, on page 9 of May number of this journal, gives us some valuable hints regarding this matter.

You will not, of course, attempt to use sections without starters of some kind; we prefer very thin (10 ft. to lb.) foundation, cut full size of sections and fastened in with a preparation made of two parts of rosin and one part beeswax. Those who box sides and top may start them at work on the sides as they commence there more readily, and then after they have been started remove them to the top and replace them with empty ones. Most beekeepers will be troubled more or less with swarms about this time. Where the apiary is not too extensive, we would advise the plan that we learned of Mr. Yates, of Yatesville, New York, as follows: your stocks should be of such equal strength that they will prepare to swarm about the same time. Now if No.

1 swarms at 10 A. M., take a "swarming box" as described in Alley's "Handy Book" (or any box with wire cloth top and bottom) and put them into it, taking the number of queen with bees; now cut out every queen cell, arrange the brood chamber and surplus room. When the next colony (No. 2) swarms, put it into the hive No. 1, previously arranged to receive them (this may be done at any time within 24 hours); now place the first swarm, No. 1, in the hive which swarm No. 2 has just left, first preparing the hive and surplus arrangements as in former instance; by thus doing you gratify the swarming impulse and yet do not increase the bees. Sometimes the queen may be taken from the colony and placed for a few days either in the queen nursery or a side hive, as described by L. C. Root, page 8, May number, Apiculturist. I have seen colonies so persistent in the matter of swarming that they swarmed out eight times, and then we were obliged to extract all the honey from the hives and run them for extracted honey.

Remember that beekeepers are now reaping their best honey harvest and that everything pertaining to the apiary and care of the bees must be attended to promptly. It will be a fine time just now to try one lot (at least) of queen cells by Alley's method, and learn for yourselves that there are new and better ways to rear queens than we have known in the past. Your honey harvest largely depends upon the character of your queens. Those who are working for increase of stock may build up very rapidly now, by using comb foundation, and rearing their own queens, so that they may have them when they divide their colonies (see either of the standard works on artificial increase). Mr. House in his essay in the "Handy Book" reasonably suggests reversing the sections to have them completed nicely. It will be well to try it this season. Be sure that your extracted honey is well ripened before putting it away. L. C. Root offers some suggestions on this point in the Bee Keepers' Exchange (March and April numbers) in a paper read at N. E. B. A., last spring. In storing your surplus or section honey, place it in a moth-proof dark room, and the sections should not be left for any great length of time outside where the moth can get at them. Study your colonies carefully and well and note those which are the best honey gatherers, best breeders and which have the largest number of valuable characteristics, and next season you should breed from such queens, and supersede the poor, weak and feeble ones. In this way you will improve your stock and increase your income. Watch sharp for foul brood, never examine a colony without noticing the brood to see if it is affected, as when once started it spreads very rapidly, especially at this time of the year. It would be well if more attention were paid to this matter, or the time may come when it will become an epidemic and a scourge. If there should come a honey dearth or spell when the bees were idle and storing no honey, it would be well to stimulate them just enough to keep up breeding. We consider this not only good but essential. There may be some who think that they must open a hive and examine the colony thoroughly to understand its condition. To such we would say there is no need of this; watch your bees and you will soon learn to judge of their condition by their actions; this saves honey, time, and often queens, and is essential to success.

INTERESTING NOTES

[From Chambers' Journal for June.]

[The writer quotes the following instances to show that beekeeping, in England, is profitable.—Ed.]

"One beekeeper (a country laborer) gives the average expenditure and income of an apiary of ten colonies for a period of ten years, as follows: his outlay was £60 [$300.00] and his income £269 [$1345.00] or an average of nearly £29 [$145.00] clear gain each year; also a gardener in East Lothias whose profit from one colony in one season was £7 [$35.00]; a railway official who from twenty-five colonies sold £107 [$535.00] worth of honey in 1878 (this was in a favorable locality and the season also was favorable)."

The writer then states that even greater profits than these have been realized, and adds that there are localities where £2 [$10] per colony may be averaged.

The question then is asked why capitalists do not engage in this business, and the answer is given that beekeeping cannot be monopolized as the apiaries must be small and scattered on account of the scarcity of food or bee-pasturage. He also states that comb honey in England demands high prices, seldom less than 2 shillings [about 40 cents] per pound retail, and thinks that there is but little danger of glutting the market, as the demand will probably always exceed the supply.

The writer then refers to American honey, and while in regard to extracted honey he may have some grounds for suspicion, yet we think that he has not carefully examined the facts relative to comb honey. He states as follows: "numerous quantities of very inferior *stuff* are annually imported from America to supply the English demand; and this honey finds a ready sale; of course it sells at a much lower price than the *genuine* article, and is used by a class who would think twice before giving half-a-crown [about 60 cts.] for a pound of honey, though in reality they pay much more, for only a portion of what they buy as foreign honey is really honey. You cannot adulterate eggs people will tell you; nor yet honey if you buy it in the comb, just as the bees left it sealed and stamped with their own peculiar trade mark. And yet, there is nothing *more adulterated* than much of the honey sent to us across the Atlantic.

"The makers of wooden nutmegs, of cheese from lard, butter from suet, and who send the best Belfast hams, from Chicago direct, are fit enough for adulterating honey even though it was sent across the Atlantic "just as the bees left it," and adulterated honey is much more objectionable than cheese or oleomargarine. *Most* of it is nothing more than glucose or artificial grape sugar, now so largely manufactured in the states for making spirits, and for the adulteration of sugar, honey, preserves and everything sweet. The bees are allowed to gather honey by day and are liberally fed by night so that the real honey and the false are stored side by side.

"The real thing only serves to give enough of the odor and a little of the flavor to make it sell.

"Other adulterators give plain cane sugar syrup which is harmless enough, but is worth only 2 pence, half-penny [about five cts.] per pound. But even American honey itself is inferior; hence there never will be foreign competition in this article as in the case of grain and meat."

Regarding this matter we think the writer has been misinformed, or as before stated has not carefully examined the facts in the case. Our American beekeepers, through

their journals, associations and conventions, are using every means possible to crush out this evil of adulteration, and we feel assured that even the adulteration of extracted honey in nearly every instance takes place after it has left the beekeeper's hands. It does not pay to adulterate comb honey. We have experimented with feeding back honey to have the section completed and found that the waste would eat up the profit.

After an extended acquaintance with many of our most prominent apiarists, a practical knowledge of comb honey and the methods used in obtaining it, we feel warranted in stating that we do not believe that our beekeepers ship a pound of adulterated *comb* honey, and that when extracted honey is adulterated such adulteration takes place after it leaves the beekeeper's hands. And here let us state that it is our firm and candid opinion that the beekeepers of America should cooperate in one grand body strong enough to command protection or protect their own interests, and if needs be place agents in foreign countries who would deal honestly in handling their honey. This may and should be accomplished, or our reputation will continue to be injured by just such reports as the above.

We are pleased to know that the N. E. B. A. of New York state have laid the foundation of such an association, and the secretary, Mr. Geo. W. House, of Fayetteville, N. Y., is earnestly and energetically at work trying to institute such an organization. We would urge our readers and beekeeping friends to come and join with him and assist him in this work.

The writer then touches upon the best methods of beekeeping and shows that our English cousins are fast leaving behind the straw skeps and taking up the frame hives, extractors, and implements of advanced beekeeping. He favors early stimulative feeding and states that there is great gain from it, also feeding during periods of scarcity, both to keep up breeding and for the purpose of building surplus combs from foundation, for future use. He also favors extracting all of the honey in the fall and supplying the bees with sugar-syrup for winter stores. Finally, he appeals to his fellow-countrymen to pay more attention to the advancement of apiculture, organization of associations, the study of bee-literature, and the improvement of every opportunity to master apiculture. Wisely referring to the independence that comes to the laboring man from being the owner of a few colonies of bees and hence a property owner. The article savors of enterprise and energy.

EXCHANGES.

Report from a Chicago Honeyman, R. A. Burnett, of Chicago. —I sold, of comb-honey crop of 1882, up to the first of January, 1883, nearly 120,000 lbs.; from January 1st to April 1st, sales were slow, and yet 70,000 lbs. have been disposed of. There are perhaps a few tons of dark and buckwheat comb-honey on this market that will not be consumed before the new crop comes into market. There have been three pounds of comb-honey crop of 1882 offered in this market, to one of the crop of 1881.

Extracted honey has aggregated in sales 140,000 lbs. There is perhaps much to carry over yet on the market. Prices since the first of December, 1882, have gradually declined until the present

date. At this late hour, holders are anxious to sell, hence prices vary very much. Honey has been offered in almost every conceivable shape and style of package. But that which meets with the most demand is the one-pound section; next the 1½ pound section, or frame; and packages containing 25 to 40 lbs. are preferred. One-pound frames of comb-honey are as small as this market calls for at present, and none larger than 1⅓ will be taken to any extent, when the smaller can be had.

Extracted honey should be furnished in packages ranging from 10 to 350 lbs.; the smaller packages should be tin; the larger ones, iron-bound casks and kegs. —*Gleanings*, April 2, 1883.

BOOK NOTICES AND REVIEWS.

We have just received a copy of the late edition of "Quinby's New Bee Keeping" from its author L. C. Root of Mohawk, N. Y. It is a handsome work of nearly 300 pages. The typography and binding are commendable, and we take great pleasure in recommending this work to our readers as an *indispensable* handbook to the practical beekeeper. We have used it for a number of years as a book of reference, and find that it is filled with valuable information upon every topic pertaining to apiculture. The fact that it contains the results of the lifework of Moses Quinby (the father of practical apiculture in America, and the one from whom so many of our most prominent apiarists received their first instructions in practical beekeeping), should of itself be a sufficient guarantee of its worth.

In revising the former edition, Mr. Root has greatly improved it adding not only the results of his own experience, but also new methods and advanced ideas. We should deem our library of beekeeping literature incomplete without it.

As an inducement to subscribers, we have made arrangements with the author so that we offer it (in our club list) at a great reduction, or it may be purchased of the author. (See adv.)

NOTES AND QUERIES.

The Philadelphia Beekeepers' Association held its meeting June 11, at the residence of the Secretary, F. H. Hahman, Esq., situated in Harrogate, a lovely suburb of Philadelphia.

As evidence of the interest taken in the society and its objects, and the energy of its officers, there were nearly thirty members and visitors who responded to the call.

The early part of the evening was spent in the apiary, where some hives were opened and frames thoroughly examined by ladies and gentlemen, many not troubling to wear any veil or protection of any kind, as with careful handling the bees behaved well and rather seemed to enjoy being admired. Messrs. Townsend (President), Todd (Vice President), and Hahman (Secretary) acted as demonstrators, and in the case of the Holy Land bees and Cyprians, the distinctive mark of the golden shield on the thorax was specially pointed out.

The shades of evening having fallen, the meeting was called to order by the President, and the usual routine of business trans-

acted, when an interval for conversation followed during which Mr. Hahman regaled the assembled company with a sample of his new honey which was much appreciated.

Mr. Shalcross had a splendid microscope under which he displayed the wonders of the honey bee which to the novices in bee keeping was especially attractive and useful.

When the meeting came to order again, the President called on Mr. Arthur Todd, Vice President, to read a contribution entitled "A Bee Tour."

This paper drew forth a vote of thanks, and then in accordance with the Vice President's suggestion, the following resolution was put to the meeting and unanimously carried.

Resolved, That the thanks of this Philadelphia Beekeepers' Association are due to Messrs. Alley, Locke, Hoffman, Soden, House, and Baker for the courtesies and hospitalities extended to our Vice President, Mr. Arthur Todd, while on his recent tour in search of information and experience that might be advantageous to lay before this society, and these gentlemen are cordially invited to meet the members of this society if at any time they find themselves in the city of Philadelphia.

Sundry questions found their way into the question box and, being answered by a committee, gave rise to pleasant discussion. At a late hour the meeting adjourned, its members having spent one of the most enjoyable evenings since the formation of the "live" young society.

The June number of "Gleanings" has arrived, and as usual is brimful of valuable information.

We take the following note from Nicholl's Journal of Chemistry :—

One of the subjects for consideration at the meeting of the Agricultural congress, to be holden in Paris in July next, will be, "the creation of artificial colonies and the most practical means of increasing the production of honey." We shall look forward with a great deal of interest for the conclusions of this body on this interesting subject.

J. E. Pond, jr., of Foxboro, Norfolk Co., Mass., desires to obtain the address of every person in the state of Massachusetts who is interested in bee-culture, with a view to opening a correspondence in regard to starting a beekeepers' association. Brothers, give him your address on a postal card.

Since we published the May number, a beekeeping friend in this city has received a $20.00 colony of bees purchased from Mrs. Cotton, and as we have referred to her before, it may be well to describe the colony and its condition when it arrived.

This was to be a first-class, full colony, Italian queen and bees. Upon arrival we were called upon to examine it and found that the queen was fine looking and quite yellow and the bees well marked, but there were not more than bees enough to fill a two-frame nucleus with one good comb and two others that were broken from the tops and which the bees have completed since the colony arrived ; there were also three empty frames. The hive is quite similar to any other with large surplus room. But all that our friend obtained for his $20.00 were a two-frame nucleus of Italian bees, an ordinary hive and a cheap bee book.

We have given the plain unvarnished facts in the case leaving the reader to judge regarding her integrity as a dealer.

We would call the attention of our readers to the money-order system of the American Express Company. Those who live near this express line can send money cheaply and safely. For information, inquire of your nearest express company.

It has been suggested that we give considerable attention to the honey market and we propose to do this, hence we would request our readers to send us any interesting items regarding the honey market.

Remember that we wish you to make all the suggestions that you think would tend toward improving the journal, and as far as in our power lies we will respond. If you do not care to subscribe, at least let us know what you think of the journal, and send names.

We have just received 2½ lbs. of bees from T. P. Andrews, Farina, Ills., and must confess that we were never better paid for an investment. The bees came in first-class order.

LETTER BOX.

Prof. Cook, in an issue of the "Rural New Yorker," states that in the Italians, like the Syrians and Cyprians, there are fixed characteristics which are persistent and that therefore they are races. Now, as I understand the meaning of the term "race," it is a modification of a species marked by some persistent characters, in contradistinction to a variety, the characters of the latter being susceptible to retrogressive modification under the influence of in-and-in-breeding. Now, I have it from unimpeachable authority, that the Italians *do* retrograde when allowed to breed freely among themselves, which is a direct contradiction to Prof. Cook's statement, and I would like, through your valuable journal, to ask for information on this subject. Do the Italians retrograde when bred in? My informant claims that he has tested it and that his Italians eventually returned to black bees.

If the above be true and the Syrians and Cyprians are the same (having fixed characteristics) as Prof. Cook states, *have we any true race other than the black bee?* Are not our so-called races simply varieties?

G. A. B.

Glenwood, Cass Co., Mich.

DEAR SIR: We have just received a new paper devoted to apiculture, published at Salem, Mass., by Silas M. Locke. Tearing off the wrapper the first article that meets our eyes is — Plain Talk on Bee Culture, by J. E. Pond, jr. Mr. Pond talks right to the point; this article alone is worth one year's subscription to beginners. The next two articles are good; then comes Mr. House's article headed "System." That article was *a feast* for us, as our apiary is worked on the "System" plan (we think so at least); every hive and comb just alike with us.

We use the eight-frame Langstroth Heddon hive and like it first rate.

Mr. Demaree gives us some good advice. I have always held the opinion that it required about as much or a little more brains to put into practical use things invented, in the right shape and at the right time, than it does to invent the same things.

Then comes that "Winter Problem," by H. Alley. I agree with him that the size of hives makes but little difference in wintering, but we have faith that we can take *any* strain of bees, feed them on granulated sugar and winter them nine times out of ten. Regarding this I speak not from actual experience but from observation and reading.

We have wintered bees for the past eight winters with chaff protection; average number of colonies seventy, and never lost enough to speak of from dysentery, excepting the winters of '80 and '81 when it took every one, 75, and never left us a "hum." But to proceed. E. E. Hasty's article has got the ring of truth. We have been there, Mr. Editor. Now I have tried to let you know what I think of the sample copy of the Apiculturist. If it continues as good, you can count me as one lifetime subscriber.

System is success.
Success is system.

W. H. SHIRLEY.

Foxboro, Mass., May 30, 1883.

FRIEND LOCKE: You have demonstrated that a *first-class* apicultural

journal can be published in New England. Allow me to express the hope that the beekeepers of the New England states, particularly, and the United States generally, will rally to your support and demonstrate that a good monthly devoted to the interests of bee-culture, can be maintained in New England; also I like the tone of your editorial, with justice to all and malice toward none, asking no favors and fearlessly advocating the right as you understand it. You ought to, and I believe will, meet with such success as your efforts deserve.

J. E. POND, jr.

Mohawk, N. Y., June 4, 1883.

FRIEND LOCKE: The first number of the American Apiculturist is at hand. If possible, place it in the hands of every beekeeper in the land. It speaks for itself. One thing is certain and that is that *no* bee journal ever before published started with such an initiatory number as does yours. Your efforts are sure to be crowned with success.

L. C. ROOT,

West Monterey, Pa.

DEAR SIR: I am highly pleased with the specimen copy sent me. It seems to be filled with just those things which practical men find out about their business and how success is attained only after a lifetime of careful study.

J. T. FLETCHER.

Danielsonville, Ct.

American Apiculturist, what an inimitable name for a bee journal! No. 1, received and read. Its contributors know how to think, how to write, and doubtless how to secure honey. Neat in mechanical arrangement, first-class in every respect, we bespeak for this bright little monthly a warm welcome in many a home, where honey is relished and bees are kindly used. You may count me a permanent subscriber.

V. P. SIMMONS.

Lansing, Mich., June 4, 1883.

DEAR SIR: I wish to congratulate you on the excellence of the Apiculturist. To compete with the many excellent bee papers now in the country requires great force, ability and skill. Your first number shows that you knew this and counted the cost. I wish you great success.

Our Syrian bees are working on the lilacs; I never saw Italians do that.

A. J. COOK.

Augusta, Ga., May 31, 1883.

DEAR SIR: The initial number of the American Apiculturist is at hand. I like the "get up," of your journal. It is neat, tidy and "clean faced." I hope the encouragement you meet with will be sufficient to enable you to continue its publication.

J. P. H. BROWN.

Richards, Ohio, June 6, 1883.

FRIEND LOCKE: The initial number of the American Apiculturist is received. I doubt whether any other bee paper in America ever came out with so good a Vol. I, no. 1.

E. E. HASTY.

Seneca, Mo., June 6, 1883.

DEAR LOCKE: Apiculturist has been received and read with much pleasure. It is excellently well made up as to character of matter which it contains, and mechanically it is also a gem. Altogether I regard the Apiculturist as the coming up of one of the brightest stars in the apicultural world.

W. MCKAY DOUGAN.

Detroit, Mich., June 7, 1883.

DEAR SIR: I am exceedingly pleased with the Apiculturist.

A. B. WEED.

Can any one of the readers of the "Apiculturist" give us any clew as to the origin or derivation of the term "Alsyke" as used in connection with Alsyke clover? Equally reliable authorities render it "Alsyke" and "Alsike." Any information regarding this point would be thankfully received by

INQUIRER.

BOOKS RECEIVED.

King, Albert J. Bee and Poultry Magazine, Vol. xi, No. 6.—*From the publishers.*

Root, A. J. Gleanings in Bee Culture, June, 1883.—*From the author.*

British Bee Journal, pp. 237-260.—*From the publishers.*

Bulletin de la Société d'Apiculteur de la Somme, Amiens.—*From the publishers.*

Hamet, M. H. L'Apiculteur, Paris, 1883.—*From the author.*

Root, L. C. Quinby's New Beekeeping, pp. 264, 1882. *From the author.*

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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All communications should be addressed to S. M. LOCKE, Salem, Mass.

PLAIN TALK ON BEE-CULTURE.

BY J. E. POND, JR.

III.

INCREASE IN APIARY.

At this time, the novice especially is desirous of increasing his apiary; but, unless he is guarded in his operations, and works with extreme care and caution, he will be very liable to make a mess of it. The extent of increase with a prolific queen, in the hands of an expert, which may be made from a single colony, is very great, and if it is desirable to make such increase, rather than to gather a crop of surplus honey, perhaps as much will be gained by it in the long run. One point must be understood well and rigorously regarded, however, or a failure will surely result. It is an axiom in beekeeping that the egg-laying capacity of the queen is always in proportion to the size of the colony; consequently, if one expects to raise a large quantity of brood in a given time, he must allow the queen a large colony of bees to take care of it. The great mistake which is usually made in obtaining increase artificially is in dividing colonies too closely, and undertaking to build up these divided stocks, from the queens alone that are introduced into them. If, instead of so doing, nuclei were made in the first instance, and then full colonies used with which to build them up, far better and more satisfactory results would be obtained. In order, however, to bring about the very best results, and to make the very largest increase possible, feeding must be resorted to, and regularly kept up, even if stores are being gathered from the field; for nuclei as a rule have as much as they can do to attend to rearing brood, and have no sufficient force of foragers to bring in a supply from natural sources.

My plan of increasing an apiary, from, say, four colonies, if I desired to do so as largely as possible, without regard to gathering surplus, would be, to make the colonies as strong as possible in early spring; then about the middle of May remove a frame each of brood

and honey from each stock, with the adhering bees, into a new hive, allowing the new hives to sit directly beside the old ones; furnishing each nucleus with a young and vigorous queen; putting in place of the frames thus removed, frames of empty comb or foundation. I should feed lightly to stimulate the queen to her best efforts, and every few days remove a frame of brood from the old hive, and put it into the nucleus beside it, replacing again with foundation or empty comb. If I found too few bees remained in these nuclei, I should move the old hive a little to the right or left, and push the nucleus up close to it, thus directing more bees into the nucleus by diverting them from the old hive. Ere long, a sufficient number of bees will be found to attach themselves permanently to these nuclei, so as to enable them to operate fully alone, when they can be gradually removed from the old hives, and thus four new and strong colonies have been made with no trouble, and at the expense only of a trifle of time and food. The same course can be pursued, *ad libitum*, throughout the season, or till the cupidity of the owner is completely satisfied in this direction. As queens are sold at present, I consider it fully as economical to purchase as to rear them; but if one intends to rear his own queens, preparations therefor should be made before any increase is attempted, for an immense gain is made, by having fertile queens all ready to introduce into the nuclei as soon as they are formed.

Unless the novice has fitted himself by a thorough study of the habits and peculiarities of the honey-bee, and the laws which govern them, he had far better increase slowly, until he has gained the requisite knowledge and experience, but with such knowledge he can increase almost beyond his most sanguine expectations.

Foxboro, Mass., June 26, 1883.

RACE AND VARIETY.

By A. J. Cook.

As is commonly observed, all animals tend to vary. How seldom we see two individuals of our most distinctive breeds or races of cattle, like the noted Angus, the Devon or the Herefords, that are precisely alike. These variations, which are always more or less transient, are not sure to be reproduced. We call them mere varieties.

Now let us suppose that some expert breeder who has an ideal animal in mind selects from these varieties only such animals as point towards his ideal. He will, after a series of years, produce animals which possess marked characteristics, which have been retained so long that they are quite permanent. The longer they have been held by careful selection, the more permanent they are, and the more certain are they to be reproduced in the progeny of their possessors. Such animals form a race, or breed. *Such* animals will *vary*, and so we shall have varieties within the race.

The more fixed the race, the less frequent and the less startling will be these variations. Every breeder of cattle and horses, etc., knows and acts upon the fact, that to maintain the excellence and most desirable characteristics of any of our breeds, care, selection and a keen insight and observation are all-requisite. These very variations make great improvements ever possible; they also point to degeneration, unless caution and intelligence push it aside.

Our Italian bees are surely a race, though made so by the careful selection of nature. Those who hold that the Italians do not breed as true to type as any of our best breeds of sheep or cattle may well look about them, for impure mating is surely the deceiver that has misled them. Nor is it true that the excellence of the Italians will be maintained without careful breeding. If the possibility of degeneration characterized only varieties and not races, then we should have no races. Albino bees are varieties; but if we should select long and carefully with white fuzz only in view, we might soon change this variety characteristic into the more fixed one of race.

The practical point to be drawn from all this is obvious. Messrs. Alley and Demarec in their excellent articles have emphasized none too vehemently the necessity of care and intelligence in selection and pains in all the work of breeding.

The great work of Major Hallett of England in developing very valuable races of wheat, if I may use the expression, is full of important suggestions to beekeepers. I have often thought and stated that the most hopeful path towards the progressive apiculture of the future lies through the improvement of our stock by following the principles as laid down and followed by all of our most successful breeders whether of plants or animals.

Lansing, Mich., June 26, 1883.

EXTRACTING AND CURING HONEY.

By L. C. Root.

At our last northeastern Beekeepers' Association, I read a paper upon this subject.

While it was received with marked interest by many, there were quite a number, including some of our very best beekeepers, who evidently felt that some points taken were unwarranted. I shall not attempt in this article to discuss the best time to extract; I shall only say that at that time I gave many reasons why I advocated throwing the honey from the combs as soon as it was stored or before it was thoroughly cured by the bees.

I also claimed that it could be equally well cured by artificial means after it was extracted.

We presented a sample of honey at that time which was extracted when first gathered and cured by evaporation after being extracted. I there stated that it was my belief

that if honey were thoroughly cured it would not granulate.

In the March number of the Bee-keeper's Magazine the editors say, in referring to this matter, that "the remark of Mr. L. C. Root, that 'honey properly cured will not granulate or candy,' must have been incorrectly reported, as we have seen thousands of pounds of this gentleman's honey, white and nice as a pin, yet all solid as butter or lard. We think few practical beekeepers will indorse such a statement." I desire to say that honey may be properly cured so that it will granulate. It can also be more thoroughly freed from moisture so that it will not granulate. The great question of interest is, Must our honey be left in the hives and cured by the bees and capped over, after which the bee-keeper must uncap it and throw it from the combs with a great amount of labor? or, may it be thrown from the combs as soon as gathered, when it is very easily removed, and the bees are saved the labor of curing and capping it, and the operator saved the labor of uncapping? In the latter case the bees can be fully occupied in gathering honey only. Can the honey be equally well cured after being extracted? These are questions of *very extreme* importance.

I earnestly hope this matter will be fully investigated. The process of evaporating honey will be seen to be so simple that all may test it for themselves.

Honey so evaporated last season, and which was kept in a very cold place all winter, is yet in a liquid state not having candied in the least.

I see no reason why it may not be kept indefinitely if kept free from moisture.

Mohawk, N. Y., June 26, 1883.

BEES IN POETRY.

By S. V. Cole.

Of the little folk of nature the bees are among the most interesting. They shine not only in the field of flowers, but in the field of letters. They supply the husbandman with food and the poet with simile and metaphor. This was especially true of the ancient poets. The Muse, in coming hither from the Golden Age of Saturn, started like the linden in Tennyson's "Amphion,"

With all her bees behind her.

If we ask what has made the bees so interesting, we find, among other causes, that they are creatures with whom order seems to be the first law. The sluggard may go to the ant for lessons in the arts of perseverance, but his education is not complete until he has graduated from the bee in the science of method, economy, and the duties of a good citizen.

A bee makes wise plans and works for the common weal of his nation. And whatsoever he findeth to do he doeth with his might. Even when he uses his sting he puts his whole soul into it; for he

is soldier as well as citizen. This double character has led the poets to compare the bee community to a state, in which every member has his special duty. But in this comparison the bees have the advantage. Our systems are the imperfect development of ages, whereas the bees received theirs perfect in the beginning; so that Virgil says they pass their lives beneath "unchangeable laws." Shakespeare calls them

> Creatures that by a rule in nature teach
> The art of order to a peopled kingdom.

Virgil has sung of the bees in fuller strains than any other poet, and has interwoven fact, theory, and legend in a most charming manner. The fourth book of the Georgics, the most perfect of his poems, is devoted to this theme. Here occurs the story of the shepherd Aristæus, who lost his bees and complained to his goddess-mother "in her chamber in the river-depth." She directs him to Proteus, the seer, from whom he learns the secret of replenishing his hives.

In Virgil the bees are minified types of humanity, just as the gods are magnified ones; and they go about their business therefore after the manner of men:

> Some seek supply of food
> And by agreement labor in the fields;
> Some in their narrow homes do lay the tear
> Of the narcissus and the gluey gum
> From bark of trees, to be their hive's foundations.

The contrast between the aged and sedate bees and their more vigorous companions is very curious:

> The aged guard the towns, and build the combs,
> And mould the curious houses; 'tis their charge.
> But late at night the younger ones return
> Wing-weary home, their legs thick-smeared with thyme.

But more curious from a scientific point of view is the statement that bees do not bring forth their offspring, but gather them in their mouths from leaves and sweet plants, and in this way provide the "tiny freemen of their Rome." One observes that the Latin poet does not forget in his figures to bring the bee-commonwealth under Roman laws and customs. In another place he speaks of their "setting out on their airy march and pulling up the standards of the camp." Indeed, the Roman bees are very soldierly in their bearing, though not more so, perhaps, than their English relatives. As, in Shakespeare, some,

> like soldiers, armed in their stings,
> Make boot upon the summer's velvet buds,

so in Virgil,

> Some stand like sentinels before the gates.

At times the whole nation is aroused by an unfriendly challenge. Then it is they show themselves true Romans. Their hearts "throb with the spirit of war," says Virgil. A sound is heard "that mimics the fitful blasts of trumpets." The excited bees "flash their wings," "whet the points of their beaks," throng around the chief's pavilion, and — *mirabile dictu!*— "with loud shouts defy the enemy!" Then comes the conflict, in which: —

The leaders, midmost of the battle lines,
Conspicuous for their wings, exhibit how
A mighty soul works in a narrow breast.

The analogy between bees and men is seldom carried more dangerously near the verge of the ridiculous than when a bee dies and the survivors bear out the lifeless corpse

And form the mournful funeral train.

Time has somewhat dimmed this picture, but with its suggestion of the busts of dead ancestors and bygone accompaniments of a funeral, it must have been somewhat vivid in its day.

The intelligence of bees and other moral insects is greatly overrated, both by moralists and poets. As between bees and ants, the latter have quite as good a claim to our respect, if we may accept the conclusion of an eminent English authority that they appear to possess some means of imparting information to one another — a sort of ant-language; whereas their honey-making rivals work more by "a rule in nature." Nevertheless bees are more poetical in their associations, and Virgil has invoked in their behalf his Lucretian pantheism, introducing it, however, with a cautious "they say." According to this doctrine, the fiery souls which animate their little bodies are emanations from the All-Soul which pervades and sustains the framework of the universe, and consequently a bee's history does not end with its funeral. Its immortal part, like the immortal part of a man, is reabsorbed into the original fountain, "and so there is no room for death," says Virgil, "but each flies up into the place of a star."

Bees, along with ants, birds, leaves, and hailstones, furnished the ancient poets with convenient similes where number was involved. Homer compares the Greeks gathering for battle to "swarms of closely-thronging bees, always issuing in fresh numbers from the hollow rock." Æneas, looking down on Carthage from a distance, saw the people at work on the new buildings like so many bees in summer. And Milton, whose mind was filled with classic forms, makes Satan's minions swarm to the council at Pandemonium,

As bees
In springtime, when the sun with Taurus rides,
Pour forth their populous youth about the hive
In clusters.

In American poetry Emerson's "Humblebee" and Whittier's "Telling the Bees" are unlike anything the ancient Muse produced, and differ widely from each other, both in style and sentiment. The former contains the thoughts which arise in the mind of a philosopher as he calmly contemplates the

Sailor of the atmosphere

making his tiny voyage from flower to flower; while the latter is a simple and very effective appeal to the affections. Mr. Whittier's poem is founded on the curious custom, introduced from England and said to have prevailed to some extent in the rural districts of our own country, of informing the bees, in the event of a death in the family,

and draping the hives in black. This was supposed to be necessary to prevent the bees from flying away in search of a new home:

Under the garden wall,
Forward and back,
Went drearily singing the chore-girl small,
Draping each hive with a shred of black.
. . . . . .
And the song she was singing ever since
In my ear sounds on:
"Stay at home, pretty bees, fly not hence?
Mistress Mary is dead and gone!"

As good order is so strikingly exhibited in the government of the bees, for the bees, and by the bees, it seems appropriate that in Egyptian hieroglyphics the bee should represent royalty, and, in later times, become the symbol of the French Empire. In France the royal mantle and standard were thickly sown with golden bees, and in the tomb of Childeric in 1653 there were discovered three hundred bees made from the same precious metal.—*The Literary World.*

BEE-KEEPING IN THE SOUTH.

II.

By G. W. Demaree.

I have already intimated that the science of bee culture is more likely to be neglected in a climate in which bees "work for nothing and board themselves," than in a climate where it requires skill to pilot them through long, cold winters, and nurse them in the chilly springtimes.

Just the other day an old farmer while speaking of the amount of labor—skilled labor at that—necessary to run my apiary during the active honey season, remarked that he "used to get twenty pounds of box honey from his "gums" and never do anything to his bees." You see that much was made without any cost of production, and once in a while the twenty pound boxes were filled two and even three times in a single season, and all without a cent's cost of production. Of course such yields of honey, without cost of labor or thought, except to "rob" the bees, is the exception instead of the general rule.

And then an unpropitious season in the absence of "care" sweeps away the poor bees, the result of bee famine, or queenlessness; then you will hear the emphatic announcement that "the moths took our bees," when in fact the moths had destroyed nothing but what the perishing bees had to leave behind.

My experience has taught me that modern bee culture presents to the minds of the generality of mankind more real mystery than the most fertile imagination can conjure up, and throw around any other rural industry.

Numbers of persons of both sexes visit my apiary, some through pure curiosity, and others because they either have caught the "bee fever," or feel a commendable interest in any new enterprise in their prosperous community.

A modern apiary with its teem-

ing millions of workers, whose uproarious hum fills the air for many rods around, and all under the control of the skilled bee master as he works among his busy tenants performing the most delicate operation here, as when he removes the royal larva from the embryo cell and substitutes for it a larva from his choicest stock, or as when he searches out and captures the queen or mother bee, from among her, perhaps, fifty thousand workers, and introduces in her stead a strange queen from another race. Perhaps a swarm of bees rush out as though the "avenger of blood" was at their heels, and the queen being unable to fly by reason of age, or by reason of the loss of a wing removed by the shears, tumbles down in front of her tenement, her majesty is adroitly lifted from the ground between the thumb and finger of the apiarist, and secured by caging her, the old hive is removed from its stand, and the new one placed on it. Now the bee master stands holding in his hand the "key of the position." The fugitives, as they whirl through the air hither and thither, have missed the old mother of the commonwealth, and return with desperate earnestness to their home where they hope to reclaim her; and, finding the empty hive in the room of the old one, enter it with the joyous "call" so comprehensive to swarming bees and their queen, and also to the ear of the apiarist. The queen is now liberated at the entrance, and *presto!* "the bees are hived." Or, perhaps, the bee master is seen removing from his nicely adjusted cases the pure white section without a single open cell, or by means of the extractor "slings" the pure honey from combs "as white as Hermon." Is it any wonder that modern bee culture is wonderful to the uninitiated?

There are men who can guide ships, lead great armies, manipulate the hair-springs of watches, or govern a nation, who would be utterly at sea without chart or compass if set to preside over a modern apiary.

Bee culture is a "trade," a science peculiar to itself, a fact recognized by all visitors who gaze upon the modern apiary and the work going on therein and exclaim, "wonderful, wonderful science!"

Christiansburg, Ky.

WHY WE LOVE OUR VOCATION.

By E. E. Hasty.

"Man shall not live by bread alone:" he has a mind and a soul, whose starvation is worse than a scanty dinner, and whose poverty is more pitiful than the poverty of the purse. It is a drear success in life to "get there" with a cargo of ore, and know as we enter port that every pleasant passenger was long ago washed overboard and drowned, and every banner of beauty torn to shreds. A beekeeper can make his life that sort of a success if he is that sordid sort of a man; but the temptation that

way is less than in most other callings. The miner and the blacksmith and the stone-cutter may cultivate their minds in spite of their callings; the beekeeper has in his calling a constant stimulant to cultivate his mind; and it will be in spite of his calling if he does any otherwise. This is one principal reason why we love our vocation: it offers a livelihood, and at the same time is almost a science — and that most attractive kind of a science, a fresh and only half developed one. There is a fascination about doing something new which can hardly be made to invest an old and settled pursuit. Moreover, the fellowships one forms with other persons equally absorbed in the same fascinating pursuit are not the least among the valuable things that beekeeping has to offer.

Ah! but one can't live on clouds of sentiment, and not even on science unless there is a business sort of harvest put upon it. Let us get our feet on the ground, and take a bread and butter view of the thing. In the first place it is worth mentioning that the amount of ground we need to put our feet respectably on is quite small. We do not need the one hundred and sixty acres of the farmer, with its miles of fences, nor yet the doubly deep soil of the gardener and his 1000 loads of manure, still less the half township of the stock man, of the fresh lot to devour every year, like that peripatetic destroyer the saw-mill man. We love our vocation because it is "snug as a bug in a rug."

The most important advantage that beekeeping has financially is the unparalleled facility it offers of making one's capital as one goes along. The amount of capital invested when well under way is quite a little sum; but the amount required to start in upon is very small — hardly more than would be required to begin peddling with a pack on one's back. From the conditions of existence most men that follow independent callings must be farmers, gardeners and manufacturers. A pretty heavy sum is required to build and start even a small factory. A successful gardener usually operates with land worth from $200 to $500 per acre. We will fix our eyes for the moment, however, on the farmer. Just think of the round sum required to buy a good farm. We will be moderate and say forty acres of land at $50 per acre, which would be $2,000. How is the young man who has only a cool head and a pair of willing hands to get his pocket-book outside of his first $2,000? Quite a serious problem, is it not? True, he can mortgage the land to the seller, and so run in debt for part of the sum; but debt means both danger and unhappiness. In our vocation a young man can keep the whole world in front of him, and owe no man a dollar from the start.

There is, moreover, a field open for more extensive operations. Few have as yet made a success of owning a number of apiaries, but the whole business is still rather new, and it would be unwise to

conclude the thing impracticable on so short and imperfect a trial. If any young man is ambitious to lay the sweets of a whole county of honey territory under contribution, or to scatter his posts for honey husbandry over a whole range of mountains, he need not despair of realizing his dream; just let him master his bees, conquer the ugly problems of his craft, get perfectly familiar with his locality, and reduce all things to such a regular system that *one* apiary can be carried on profitably *with hired help*, and presto! twenty can be run in the same way — at least that's the way the logic seems to run.

Quite a proportion of human workers win their bread by callings that are a constant and unceasing grind year in and year out. Such is the case with the editor of a daily paper, the milkman, with various sorts of workmen and officials, and with many merchants and engineers. This is, to say the least, very undesirable, and we can rejoice that our method of bread winning has a let up to it when we have our bees nicely tucked away for winter in their little beds.

In common with most occupations that are carried on in the open air our craft is a very healthy one, and well adapted (if care is taken not to plunge in too deep at first) to build up shattered health upon. As this transitory world has but few things to offer that can compare with health in value, this circumstance is a quite important weight on our side of the scale.

And to close the argument with sentiment, as we begun it, the land which was the glory of all lands, Immanuel's land, was a land of honey. The Immanuel himself ages before his birth was pointed out in prophecy as one who should eat butter and honey. The one crying in the wilderness who went before him lived largely upon honey. And after the resurrection, honey with one other article of food has the strange and weird honor of being eaten by an immortal being while showing himself as an example of the new form of life which is to come. I can right readily see that such considerations as these may be esteemed as something considerably less than nothing by many minds; but by others, and I am content to stand in this latter class, such thoughts are valued. Somehow, without bothering to get at the exact logic of it, we can feel that our craft stands on more enduring foundations on account of the things that are written in The Book.

Richards, Ohio, June 6, 1883.

NOTES FROM OKLAHOMA APIARY.

By W. M. Dougan.

I.

The name Oklahoma is Choctaw and means "the home of the red man." By the Indians this name is applied to all Indian Territory, both east and west of the 96th meridian. It is a vast scope of country owned and partly occupied

by about 80,000 Indians. The country east of the meridian above named is occupied by the five civilized tribes and many remnants of other tribes who are peaceably inclined and making commendable progress in the arts and sciences. The country here is mostly beautiful and when "tickled with the hoe" yields an immense harvest. Here are undulating prairie lands in perpetual bloom from springtime to frost, while the lowlands through which the sluggish streams course their way produce rich bloom upon bush and vine which yield honey of fine flavor when the season is favorable. It is here that I am building up Oklahoma Apiary. It is situated on the Atlantic and Pacific railway, four miles into the territory, among the Wyandotte Indians. Joe and Mrs. Schiffbauer have immediate charge. Mr. S. is one of Germany's educated and worthiest sons, while his queen-bee, Mrs. S., is an intelligent and attractive Wyandotte woman who makes a devoted wife and mother. Here they own a farm upon which are grown thousands of bushels of grain and many tons of millet, timothy and alsyke clover every year.

The prairie affords pasturage for their Durham cattle, while abundant crops of the various nuts with which the lower lands abound, make the breeding of Berkshire hogs yield an immense profit. Here, black bees abound in the timber fringing the streams, and were found here by the Indians when they first came to the country. The Senecas, Wyandottes and Shawnees, do not often keep many colonies, and they are in cuts from hollow trees, but they are rivals when it comes to hunting wild bees. They sometimes cut as many as seven trees in a day. Last year some Shawnees made good wages hunting and assisting in cutting bee-trees for $1 each.

The moth is the acknowledged drawback to profitable beekeeping here, and when I tell the people that Cyprian bees are moth-proof, even here, for us, they accept the statement with grains of allowance. They think drones lay all the eggs as do many of their pale-faced cousins of the states.

They never think of realizing more than 10 to 12½ cents per pound for their best comb honey and barter away beeswax to border traders for 16 to 20 cents per pound. The natives here sell bees at prices varying from $1 to $2 per colony. Some of the old black-eyed hunters tell fabulous bee and honey stories. They have made me believe this a country in which bees sometimes starve in midsummer, while on other occasions honey-dew is so abundant that the wild grass and the crops of growing grain are thickly coated with honey-dew. In the near future beekeeping must become one of the popular and profitable pursuits in this now almost unknown and sparsely settled country.

EDITORIAL DEPARTMENT.

This number completes our first quarter and we feel truly thankful for and encouraged by the warm and hearty grasp of the hand of friendship extended to us by our beekeeping friends. It is not enough that we may be able to give you a first-class journal, but it is imperative, if you desire the continuation of the publication of such journals, that you aid in every possible way. We need information (short, spicy notes) upon every important subject pertaining to apiculture, from every section of our country. We also need the names of new subscribers and propose so to conduct the journal that you will derive more than enough of substantial and advantageous information from its pages to repay you for the investment.

We are now putting to a practical test the question, whether an independent, scientific and practical bee journal can *live* in this country. Now the answer depends largely on your putting your shoulders to the wheel and rendering whatever of assistance you may be able.

We had promised that this number should contain a photograph of Mr. Alley and his apiary, but circumstances which we could not control render it impossible and we will try and have them completed for the next number.

When sending bee notes or articles, please remember that what we most need is practical information such as one would gain from every day work in the apiary. And we beg of you to remember that the reason that the name of Father Quinby is held so dear by all who knew him, and in fact by the majority of the beekeeping fraternity, is that he loved to impart, impartially and freely, any information that would benefit his brother beekeepers. We are aware that much valuable information is locked up in the brains of its originators, simply because they are (so to speak) like sponges, in that they absorb everything and impart but little.

Believe us, we speak this with kindly feeling, hoping thereby to induce our readers to make charity's broad mantle the guiding principle of our lives.

We would call attention to friend Root's article on curing extracted honey. There is room for a great deal of study in this question. Friend Cook's article on Race and Variety should call forth more information on this subject. We would call the attention of our readers generally and our New England beekeepers especially to the article on Artificial Pasturage as given by friend Woolver in the June number and noticed by friend Root in this issue. We have sown some of the Bokhara seed this season, and some of it is now two feet high. It is imperative that we sow artificial pasturage for our bees.

We are testing the different races and strains of bees, as regards size, markings, and length of tongues, both with microscope and

tongue register. We should be pleased if any person having a valuable colony of bees, one that is remarkably good, would send us about twenty bees alive in a queen cage. After testing them we intend to preserve them in alcohol, and write on a label, placed on the vial, the results of the test and also publish them in the journal, hoping thereby to start a new interest in the improvement of our races and thus benefit apiculture.

BEE NOTES.

There is but little to say on this subject this month other than to repeat our advice for last month.

In many sections bees are storing honey rapidly. Much care should be taken that they are provided with just the surplus room that they need. Should there come a honey dearth, it will be wise to stimulate the bees with thin food to keep up breeding. Remove full sections as soon as they are completed and do not leave them standing around where the moth-miller may deposit her eggs, but place them at once in a dark, moth-proof honey-room. Mr. House has thoroughly described this point in the "Handy Book." After removing the full sections, place those not completed in the centre over the brood chamber as they will be more quickly finished there than elsewhere.

We would advise our readers to supersede all old and feeble queens in August, replacing them with choice ones. This gives you time to test them before fall when, if they do not prove valuable, they may be changed again. This advice may seem premature, but we do not consider it advantageous to wait until cold weather before beginning to prepare for winter; moreover, if you wait until late before rearing your queens and requeening the apiary, many of the queens may be lost in mating and the bees dwindle and die during the winter.

Do not extract honey too closely just before a honey dearth, unless you choose to feed your bees to keep up breeding.

If the bees in some of your sectioned colonies loaf around, clustering on the fronts of the hives or running aimlessly about the entrance refusing to work, just remove the sections and extract the honey from the combs in the brood chamber; or, if this does not accomplish the desired results, pinch off the queen's head and give them a better one. You cannot afford to encourage loafers.

When you get stung go immediately and wash off the poison in cool water.

Be very careful never to leave any honey or other sweets around in the apiary when honey is scarce, as when bees once commence robbing it is hard to stop them.

CORRESPONDENCE.

Editor of American Apiculturist:

Dear Sir,

I am much pleased with the article from C. M. Woolver on Artificial Pasturage.

He has had a very valuable experience with Alsyke clover; in fact, he gave its value the finest test in a large way of any person I have ever known. What he says of it should have much weight; particularly, as the experience of all who have tested it in a smaller way agrees so fully with his. While living in Wayne Co., several years ago, A. H. Root tested it and found it of extreme value.

This season we have three acres of it which is very fine. Though the weather is extremely bad, yet every day when bees can get out they visit it freely. Neighbors passing by ask what it is which is so very fragrant. It commences blossoming just as fruit bloom ceases, which makes it extremely desirable from that time until basswood comes.

It is extremely valuable. Will Mr. Woolver give us his experience as regards its value in quality of hay, etc.?

L. C. Root.

Mohawk, N. Y.

Editor of Am. Apiculturist:

Your request for a short article received, and it will be short, for it is off year with us this time. No eight hundred pounds from one colony, no, not one hundred pounds; yet I expect to get through with one hundred good, strong colonies, and I intend to have a pure tested Cyprian queen in every colony by winter. I want no more Italians. They have not the vim about them to do good work in this hot, windy prairie land of ours. Give us the Cyprian bee that furnished the rich pabulum that enslaved the affections of the lovely Venus and caused her to forget all rules of propriety and embrace the beardless Adonis. It is the oldest bee in the world and the best, and our beekeepers owe our friend D. A. Jones a vote of thanks and should give him their hearty support. We have had a very cold, wet spring followed by eight weeks drought, so our bees are very weak.

Yours truly,

B. F. Carroll.

Dresden, Texas, June 18, 1883.

[Friend Carroll justly recommends the Cyprians as regards their power of endurance, rapidity of flight and honey-gathering qualities; and yet, we think that he mistakes in supposing them to be the original bee. We have every reason to believe that priority belongs to the Holy Lands and that the Cyprians emanated from them. With him we think that the Italians lack much towards proving the best bees for America and we look for great changes in the development of *new strains*, within the next few years. Let us hear more about this matter.—Ed.]

Editor of Am. Apiculturist:

"As busy as a bee," and so we all ought to be. May we not learn some practical lessons from these little systematic workers?

1. "Gentlemen of leisure" are not popular in any of their commonwealths, and when too numerous they become unendurable. Their law against vagrancy is capital punishment, and but for being called hardhearted, we would call it a capital law. Even the mild gospel of the New Testament reads, "that if any would not work, neither shall he eat."

Human drones are a curse to the world, parasites of our struggling

race, excrescences of our common humanity.

Wealth is no excuse for an indolent life. We are saying only mild things of idlers. Solomon and Paul said hard things about them.

2. No colony of bees is ever cursed with office-seekers. Each female sovereign can manage her municipality without the aid of a lecherous hoard of office-seekers. Bees have no welcome for demagogues. A model government is theirs.

3. Aristocracy is also at a discount with those toiling little creatures.

As labor is honorable and idleness abominable, you will never see a busy bee paying deference to one that would be a nabob bee.

4. They not only provide for themselves, but contribute largely to the happiness of mankind — a most commendable benevolence.

From their conduct may we also learn to live for others, serving God and our generation, scattering sunshine wherever we go:

Gathering honey from every flower,
Finding sweet in every bower.

V. P. Simmons.

Danielsonville, Conn.

EXCHANGES.

Extracting and Curing Honey. —During the past thirteen years we have extracted honey largely each season, taking as much as sixteen tons in a single season.

We have operated under almost every variety of conditions.

During this time we have noticed the many inquiries which have been made through our journals, and the many articles which have been written, bearing upon the subject of extracting honey. It is a growing interest, second to none in our pursuit.

One of the most important points in this connection is the best time to extract. Indeed, to those who extract largely, it is a question all-important.

Let us notice some of the advantages of the different methods.

We shall claim, first, that as regards the quality of the honey, there is no difference as to the time when it is extracted. It may be cured equally well after as before. The only necessity is that it be cured.

The advantages of extracting honey as soon as it is gathered are these. When it is being gathered rapidly, if it is extracted at once, room is afforded for the queen to deposit her eggs, and the operation seems to stimulate brooding. The large force of bees thus secured is of great importance, in sections where the seasons are long, or where fall honey is abundant.

When extracted as soon as gathered, the bees are saved the labor of curing the honey and of capping the cells, and the operator is saved the labor of uncapping the cells, but the great advantage in removing it from the combs as fast as filled, is so that the bees may be fully occupied in bringing in honey while the yield continues. To us who are in sections where the flow of honey is of limited duration this is of extreme importance.

When the honey is first gathered, it is much more easily thrown from the combs, and it is much more agreeable to operate when the bees are busily at work.

The advantages of leaving the honey until late in the season before extracting are that the bees are not interrupted in honey gathering by being disturbed, and if left with a large amount of honey, they

will continue breeding later. This is a real advantage, and is very noticeable in hives where the amount of stores is large, but these points are of minor value as compared with those before mentioned, particularly if care is used to leave a reasonable amount of honey later in the season.

The best method of curing honey has been of much interest to us, and we have experimented largely in this direction.

When honey is being gathered so rapidly that each good stock is storing from twelve to twenty pounds per day, one will not realize, without close observation, the amount of labor it is for the bees to cure the honey and the consequent loss. Actual experiments will prove this to be very much greater than would generally be supposed.

In all this process, I see only the fact that the honey is spread over a large surface, and handled over by the bees and subjected to a high degree of temperature and more or less exposure to a circulation of air. With these facts in mind, we have endeavored to produce the same results and relieve the bees of this labor.

I predict that in the near future, honey pure and unmixed will be evaporated to the proper consistency and take a high rank as desirable confectionery.

The bearing this subject of properly evaporated honey has upon holding honey from one season to another is worth our attention.

A thorough investigation of this subject by beekeepers generally, will, in my opinion, prove it to be one of extreme importance.— *Beekeepers' Exchange.*

ELECTRIC LIGHT AND QUEEN-REARING, BY REV. SAMUEL KUESTHARDT.— It seems that the problem of controlling queens mated by drones becomes solved by the aid of electric light. A German newspaper says "a certain Mr. Gravenhorst, of Brunswick, a prominent beekeeper, brought his colony with virgin queens into large, sufficiently warm rooms, which were lighted with electric light. The bees flew around with perfect ease; they did not fly against windows or walls and so get killed, as no light from outside shone into the room. He raised, in that way, purely mated queens on a large scale."— *Gleanings.*

[We think with friend Root that the statement may be a "newspaper yarn," and yet the matter is worth a trial. Let us see what "yankees" will do with it.— ED].

NOTES AND QUERIES.

WHILE in Boston on business July 10, we enjoyed a pleasant visit with Messrs. Crocker & Blake, honey-dealers, and found them willing and pleased to impart all the information possible regarding the requirements of the honey-market. They had just received a large shipment (five tons) of fine orange blossom honey from Alderman & Roberts, of Viola, Fla. At their request we sampled it and found it equal, if not superior, to any honey that we have ever seen, most of it being quite heavy, very rich, clear and as highly flavored as orange itself, and to my taste resembling our Alsyke honey, although in color it was not quite as white, being somewhat similar in this respect to basswood honey.

If our Florida brethren can send to market such fine honey as this, we may look well to our laurels. We understand that Messrs. Alderman & Roberts have taken

3,000 gallons (eighteen tons) of this honey this season.

This whole lot sold readily at sight for nine cents. It was shipped in barrels ranging from eighty-five to 200 pounds.

This firm has not received any new comb honey yet. They obtain their best comb honey from J. E. Crane of Middlebury, Vt. They do not deal in small packages of extracted honey, preferring the kegs holding from one hundred to one hundred and fifty pounds.

We next considered the one-half pound box question, and learned that one of the partners when visiting Chicago met Mr. Newman and visited the exhibition at Toledo, meeting with the beekeepers there. While at the latter place he stated to Mr. Newman and others that the Boston trade demanded that a certain percentage of the honey be furnished in one-half pound sections, and that honey in such sections brought a much better price than that in larger sections, as some parties wanted just a small comb in case of sickness or for a small company and would pay fully as much for it as for a larger comb.

Messrs. Crocker & Blake think it hardly just that on account of this that the whole of the blame of introducing an odd size section upon the market should be attributed to Boston.

They consider that the honey trade must become popular in order to increase, and we must cater to the demands of the public taste to some extent at least.

This applies of course to Boston markets, and they are not certain that the same demand for small sections exists in any other.

Last fall V. S. Benedict and S. C. Newman of Peoria, New York, shipped to them fifty cases of fine honey in one-half pound sections and it sold for thirty cents per pound. Notwithstanding this they do not advise the general and wholesale shipping of honey in one-half pound sections.

They favor for Boston trade, one-pound sections with equal portions glassed and unglassed. The two-pound section is too heavy for their trade, and they can sell the one-pound to better advantage and at a better price.

The question of marketing our honey is of paramount importance, and we hope that a deep interest will be taken in studying out new means of building up a permanent and lasting demand, and properly regulating the supply and manner of shipping.

We think that oftentimes the fact is forgotten that reports of prices and condition of supply and demand existing in one locality may not and should not govern those of any other market. For instance, D. W. Quinby, of New York City, wants the bulk of his honey glassed and favors two-pound sections, while Crocker & Blake favor the one-pound and one-half pound sections, with equal portions glassed and unglassed. These firms are equally honest and reliable dealers, and in giving their opinions only give the demand which exists in their localities. By this we see the necessity of more careful study of the requirements of each and every honey centre and market, and care taken that our honey is placed only in the hands of reliable dealers who will work for the interest of the beekeepers.

All members of the Northeastern Beekeepers' Association, and others who contemplate attending the convention at Toronto in September next, should send their address to the secretary, Geo. W. House, of Fayetteville, New York, when they will be furnished with

excursion rates, time table, badges, etc. Please attend to this matter and rally to the call in such numbers that the meeting will prove a grand success.

Friend Jones sends the following notice of the annual convention of the North American Beekeepers' Association. As we were present at the formation of the Ontario Beekeepers' Association in Toronto, as well as at the second convention of said Association, we can promise our readers that if they choose to visit Toronto they will be received hospitably and entertained in fine shape.

"The National Beekeepers' Association will hold its annual convention in the City Hall and council chamber, in the city of Toronto, on Tuesday, Wednesday, and Thursday, the 18th, 19th, and 20th days of September, during the second week of Canada's Great Fair. All the railroads in Canada will issue tickets during this week, good to return up to Saturday night, 22nd inst., single fare for the round trip. Special excursion rates will be arranged from various parts of the United States, of which due notice will be given. Those who intend to be present may be kept posted on the latest excursion rates, etc., by addressing me, and also that I may arrange hotel accommodation. Private lodgings will, if possible, be secured for those who desire it, and every effort will be made to make every body comfortable. A grand meeting is anticipated."—D. A. Jones,

Beeton, Ont.

We have just received a newspaper clipping stating that one of the Root Bros. (A. I. Root) of Mohawk, N. Y., received a severe gash and blow from an axe, while assisting in putting up extracting-tents. We are pleased to know that although the wound was severe, yet it was not attended with any serious results.

We have just received a three frame nucleus of Italian bees from P. F. Rhodes, New Castle, Ind. They arrived in fine condition. The queen and bees are large, handsome, gentle and yet active, and so far prove first-class workers.

Friend Alley dropped into the Office yesterday for a bee chat and showed us a new food that he is devising to use in the queen nursery and in shipping queens. He does not wish to explain its composition until he has thoroughly tested it, but, so far, it is proving the best I have ever seen for this purpose. It is moist and yet it will not run nor daub the cage or bees; neither will it crumble and scatter about the cage. We will explain its composition more fully when Mr. Alley has pronounced it a success.

Since publishing our last Journal, Theodore Houck of Canajoharie, New York, former editor and publisher of the "Beekeepers' Exchange," has fallen asleep. We were associated with friend Houck, both when he was a fellow workman and editor, and have enjoyed many pleasant visits at his home. We always found him to be earnest, energetic and thoroughly practical in his business; he was an enthusiastic apiarist.

We would extend our heartfelt sympathies to the one who is left to battle alone with life's tempestuous sea.

NOTICE.

As it is our object to make the Journal interesting and instructive, we have decided to make a "new departure" and propose each month to send out to a number of prominent bee-keepers, with whom we are completing arrangements, a printed list of interesting and instructive questions, the answers to which will be of importance alike to the novice and expert. Again we wish every beekeeper who desires information on any point relative to apiculture to send to us early in the month such questions with the name of the apiarist from whom he desires the answers.

This month we have a number of queries regarding marketing answered by Mr. D. W. Quinby of New York City, whose integrity as a honey-dealer is unquestionable. Also, a list of ten questions with answers from L. C. Root, Geo. W. House and "Linda Flora." Now, come to our aid, both by sending in your queries and by answering any questions that may be sent you.—ED.]

QUESTIONS AND ANSWERS.

QUESTIONS BY L. C. ROOT.

1. Shall we use separators?
2. Shall we glass our honey?
3. What size box shall we use?

ANSWERS BY D. W. QUINBY.

1. I have received honey in every style of package. When stored without separators it is more or less uneven, the comb of one box projecting into the one next it. *I advise the use of the separator by all means.*

2. I have a few customers who use honey in full crates for cutting up who desire it without glass. Even these prefer it built with separators so that it will be straight and even. Ninety per cent of all honey which is to be retailed should be glassed.

This is absolutely necessary for the best interest of all; the producer, the dealer, and the consumer are alike interested in this. From the time it leaves the producer until taken from the box by the consumer, it is continually to the interest of all that it be protected from injury. The market for honey has been much injured by a failure to observe this demand.

3. This is one of the most important questions pertaining to marketing honey.

There is danger of our beekeepers running too largely to one-pound boxes. Early in the season when the poorer class desire a small amount of honey, some of the one-pound boxes will sell; but later in the season, when the substantial consumers of honey secure their supply, the demand is almost wholly for two-pound boxes. The size of such a card is much more desirable for the table.

I do not believe that the honey which is now produced could be sold if it were all in one-pound boxes. It would not sell for as good a price, and I am certain that less honey would be consumed. I have sold honey largely for several years to the largest and best grocers in New York, and I have never yet sold them a case of one-pound boxes.

Beekeepers are working against the best interests of all in advocating one-pound boxes so largely.

[We take great pleasure in fully endorsing the answers given by Mr. Quinby, coming, as they do, from one in whose integrity as a reliable dealer we have the most implicit confidence, and who for many years has been enabled to study the demands of the honey market. Not only this, but the most prominent and thoughtful apiarists in our country are awaking to the fact that we should adopt some standard box and use glass. We think that

it is generally conceded by the majority of our most successful apiarists that separators are indispensable; if not it should be.—Ed.]

QUESTIONS BY EDITOR.

1. What means do you use to prevent swarming, and how are those means applied?

2. Do you secure the best results by permitting increase, or by controlling it?

3. Which method of increase do you prefer for general purposes, natural or artificial?

4. Do you think that separators are essential and that the benefit which accrues from them pays for the expense?

5. Which do you consider the more beneficial and profitable, sending your section honey to market glassed or unglassed?

6. What size and shape section do you prefer, and why?

7. Do you prefer allowing the honey to ripen in the hives and be capped over before extracting or curing it by evaporation, and have you tested it?

8. What style and size package proves the best with you for marketing extracted honey?

9. Have you tested artificial pasturage for bees and if so what kind and to what extent?

10. Which do you prefer, side and top storing or top storing alone, and why?

ANSWERS BY L. C. ROOT.

1. If old stocks are supplied with young queens it tends to prevent swarming. Room for the queen to deposit eggs and for the bees to store honey freely also tend toward this end. Give plenty of ventilation and *shade* the hive well.

2. Taking one season with another we prefer no increase of stocks. When we can buy at reasonable prices we find it a gain to secure honey rather than to increase our stocks. We would always have control of the swarming propensity. It is not enough to control swarming. The desire to swarm must be prevented.

3. I would never allow natural swarming. I could practise a better method even with a box hive. I prefer to start nuclei and then build up to strong stocks.

4. *Emphatically, yes.*

5. There is but one way to build up a fine honey market for comb honey, and that is to protect each box with glass. This is to the interest of all.

6. I prefer a box holding about 1¾ lbs. This box takes a 5×5 glass. I prefer this box because it holds a good size card for the table. When cased three boxes in a crate, they weigh five pounds; six boxes ten pounds, and twelve boxes twenty pounds. We like them on this account. We think the best interest of all, if we are to have a substantial honey market favors a larger rather than a smaller box.

7. I *much* prefer extracting before it is capped. It saves the bees and the operator much labor and has many important advantages.

We have tested it very largely and can speak from experience.

8. We are now having a fine experience with Alsyke clover. It is proving of extreme value.

Motherwort is valuable, but we prefer some crop which is of value for general purposes.

9. We market the bulk of our honey in firkins holding from 50 to 150 pounds. They are wood-bound pine firkins. Our home market calls largely for pails holding from ½ lb. to 25 lbs. If nicely labelled, and prepared in a tasty manner, a large trade may be built up for such packages.

10. Where but little increase in stock is allowed I consider side boxing essential. It requires more experience to allow stocks to become very populous and use boxes with sides and top. Swarming can be more easily controlled when both side and top boxes are used.

Mohawk, N. Y.

ANSWERS BY GEO. W. HOUSE.

1. By taking frames of brood and bees from the old colonies, replacing them with frames of foundation. (See Alley's Handy Book.)

2. We secure best results with a rational increase, the percentage of increase being governed by the season and prospect for honey.

3. Artificial.

4. No apiarist, who wishes to realize the best prices, and to secure his surplus in the most desirable shape, would do without them. They are indispensable. Comparatively, the cost is nothing.

5. Two-pound sections should be glassed, one-pound boxes should have the combs protected by using the paper box. (See page 117 "Alley's Handy Book.")

6. A section measuring $5\frac{1}{4}\times5\frac{1}{4}\times2$, because it is the most profitable and suits the trade and the consumer best.

7. Have not tested evaporation. Prefer to extract when the bees *commence* to seal the honey.

8. Casks holding about 160 pounds for wholesale trade, and one, two and a half, five and ten pound pails for home trade.

9. Artificial pasturage will pay. Alsyke clover is the most profitable. Sweet clover comes next.

10. The hives should be constructed so as to admit of both side and top storing, using top storing on some colonies, while on others both should be used. Much depends on circumstances and strength of colony, taking the season into consideration. It would take several pages to answer this question minutely. The above questions are better and more fully answered in Alley's new book.

Fayetteville, N. Y.

ANSWERS BY "LINDA FLORA."

1. I prevent swarming by cutting out queen-cells, or by taking away brood or honey, and replacing with empty combs or foundation.

2. Swarming in this country is done on a steady, but not heavy, flow of honey that commences in February, and, with the exception of a greater or less intermission in April, continues until the last of May. By feeding to "bridge over" the drought in April, a large increase can be made during these months, and every swarm adds to the honey crop of the season, as every one can be got into good shape to take hold of the big flow that comes in June, July and the first part of August. Another advantage in allowing a fair increase during the spring is found in the fact that by the time the apiarist has to commence extracting in dead earnest, the swarming fever is subdued and he can give all his time to securing the honey until the last week in July, when swarming season will commence again if not prevented. Swarming in July or August will seriously interfere with the honey crop, but as the flow ceases almost entirely from the sixth to the twelfth of August, cutting out queen-cells will usually hold them in subjection until that time. The fall flow in this section does not induce swarming, as I am told that it does in some portions of this state.

3. If anxious for large increase, I should take one or two frames of brood and bees from each colony as

often as they could spare them, replacing them with worker-combs, or full frames of foundation, and with these combs make good strong colonies. Ordinarily, I prefer natural swarming, with the queen's wings clipped to prevent absconding.

4. I am not an authority on comb-honey as my experience is somewhat limited (too far from market and too many freight-smashers). What expeence I have had, however, goes to show that if the sections are of the proper width and filled with foundation, separators are not essential.

5. Glass the crate, but not the section.

6. I prefer the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$ section to any other, as it holds just about a pound, which is the amount that suits most markets best for retail trade. It is handy and not likely to break with proper handling; it fits the L-frame if broad frames are used; it can always be had at short notice of any supply dealer and the bees work in it readily.

7. I extract my honey when about one-third capped, into tanks holding some 1,350 pounds each, which are on wheels and run on a track that leads out of the honey-house on to a platform where they get the full heat of the sun. Each tank is covered with a frame of tinned wire netting, so that the bees cannot get at the honey. In this way my honey is cured so as to be pronounced equal to the very best by such men as Chas. F. Muth and L. L. Langstroth. If the honey is left much longer in the hive, much labor and time are lost both by the bees in capping and the apiarist in uncapping, and the honey crop is much reduced. I will say here, however, that I do not like the tank plan and shall supersede it as soon as I can get time to build a new and larger honey-house, by an evaporator such as is used in making syrup, only I shall have it larger and made of tin. This I shall cover with a glass roof and then extract into one of my tanks so arranged that the faucet will be over the highest corner of the evaporator.

8. For us here in south Florida the forty-gallon cypress barrel is by all means the best package for extracted honey.

9. I have not tested artificial pasturage to any extent, unless you call planting orange groves such; I intend to do so to see if we cannot bridge over the April and August droughts. A large quantity of honey is gathered from our orange trees in February, just when it is needed for brood-rearing.

10. I prefer top storing as it is less trouble, and I have never found any particular advantage in side storing.

LETTER BOX.

FRIEND LOCKE:

I am very much pleased with the Apiculturist. It is well gotten up and is a model of neatness, but above all it starts off with a list of contributors who are practical apiarists, good writers and reliable men. That the Apiculturist may prove a success in every way is my sincere wish.

We have had an unusually heavy flow of saw-palmetto honey this season; but owing to rainy weather the bees did not commence on the mangrove and cabbage-palmetto as soon as usual. They are now hard at it, however, and we have some 8,000 or 9,000 pounds already gathered of this season's honey.

LINDA FLORA.

Medina, Ohio.

Of late, the advent of a new bee journal has become quite a "novelty," more so in fact than their departure. But here lies before us a genuine sample of "Vol. 1, No. 1," of the *American Apiculturist*. S. M. Locke, editor and proprietor, Salem, Mass. It contains twenty-four pages of reading matter, $5\frac{3}{4} \times 9\frac{1}{4}$, besides eight pages of advertisements. It is set in "long primer" type, leaded, making a very readable page. The press-work is very good, and great care seems to be taken by

the proof-reader. The high quality of the advertisements is commendable In short, Brother Locke has left little, if any, room for complaint from any who want a good bee journal.

GLEANINGS.

Christiansburg, Ky., June 22, 1883.

DEAR SIR: The season has been splendid here and my home market good. My honey brings at the apiary, comb and extracted, 15 cents per pound.

The American Apiculturist, so far as I am able to judge from present appearances, is likely in the future to walk among its fellows — the monthly bee periodicals — like King Saul a "head and shoulders above" them all.

Brother Locke has certainly made a promising start with his Journal. I am proud to see that it is edited by a master in the art of the printing office. I am much pleased with it. and feel sure that it will fill its mission ably and well. Beekeepers support with a "liberal hand" the bee journals, for it is by and through them that apiculture is "what it is," and must be what it "will be." G. W. DEMAREE.

Bound Brook, July 3, 1883.

Swarming must be an excuse for not answering before. I never saw the like. My bees I am sorry to say are largely, yet those splendid (?), Holies. They are getting cooled down finally, and I will send you something soon for your next. I am much pleased with the Apiculturist. It is certainly the most tasty and sensible in appearance of anything in its line published in this country, and I believe no one before ever succeeded in getting together so many good things from so many "old heads" as there are in your first number. Long life and success to an enterprise which starts so well.

Yours truly,

J. HASBROUCK.

Foxboro, July 23, 1883.

FRIEND LOCKE: A few weeks ago I received one of your feeders. As my bees then were gathering honey freely, I have had no opportunity till now to try it, in order to test its merits. For two weeks past I have been feeding to stimulate the queens in order to keep them constantly laying, and find yours the very best feeder I ever used for the purpose. It is handy to fill, as I am not obliged to remove it from the hive, and I can easily so regulate it, as to allow a small or large quantity to be taken from it. This I deem of great value in stimulative feeding, as the object in that is to feed very slowly; not to give a large quantity in a short time. I find that I can make the supply last two days, and still have the bees constantly taking some feed from it; this is a great convenience as it does not require that constant every day supervision that all other feeders do, and will allow me to be away over night without fear that the queen will stop laying for want of putting in a fresh supply every day.

Anyone who has fed for stimulation only (and what bee master has not?) can see the great advantage of having a feeder of this kind and yours exactly fills the bill.

If, on the other hand, I desire to feed a large quantity speedily, of honey or other desired food, I can so regulate the quantity taken, that all the bees can possibly remove in a given time will be supplied to them. As this is done by simply loosening or packing more closely the sponge which regulates the flow of liquid stores, it is at once easy and simple. It is generally admitted that atmospheric feeders are the best, but the trouble with them has heretofore been, that there was no way provided by which the flow from them could be regulated, and the food must necessarily flow away from them as fast as the bees would take it. This point is one of great importance, and you have succeeded in solving what has been heretofore an intricate problem. I trust you will meet with that success in sales of your feeder, which its real merits ought to gain for it, and I know that once used it will never be thrown aside. All that is required, is once to introduce it into an apiary, and the owner will be certain to cry "Eureka" the first time he uses it.

With renewed assurances of my best wishes for you, and that success may attend your editorial venture,

I remain truly yours,

JOSEPH E. POND, Jr.

Augusta, Ky., June 27, 1883.

DEAR SIR: Your Journal is the best of the kind I have seen. I am so well pleased with it that you may change my subscription from three months to one year. Yours truly,

D. B. CRUMBAUGH.

Mohawk, N. Y., June 23, 1883.

The weather with us has been cold and wet. Very little honey has been gathered. In fact, we have been obliged to feed to keep our bees breeding.

We now have had two fair days in succession, and prospects look favorable for better weather.

Bees are beginning to work well on Alsyke clover; prospect for basswood is good. Yours truly,

L. C. Root & Bro.

Charlottesville, Va., June, 1883.

Dear Sir: I have at hand second number of American Apiculturist and I like its appearance very much. Though I now take three bee journals I believe there is room and scope for one just like yours, and I must have it.

It is a matter of complaint among those who may be called novices in the art that so much of the results of our best experts' researches are kept from the general public, and they are left to plod along and repeat by costly experiments the losses and vexations that might well be avoided, by timely admonition from those who have trodden over the ground. For instance, I have had to learn that it was equally unsafe to introduce cells to nuclei made from colonies provided with queens, at once after formation, as it is virgin queens, though some writers say it can be safely done. The bees must realize that they are queenless and helpless. I have lost about fifty per cent. in such cases.

I hope to get about 6000 pounds, and increase from 70 to 120. Comb honey about two-thirds. I have long been at it and am no novice, but it is by no means my principal business.

J. W. Porter.

Philadelphia, June 28, 1883.

Dear Sir: I received the sample copy of the Apiculturist, and am much pleased with it.

There certainly "does exist an increasing demand for advanced scientific bee literature," and I am glad you have concluded to make the venture.

I have just received a note from one of the members of our association, Mr. Jas. Shore of Germantown, Pa., stating that he has extracted from *one* colony fourteen gallons of honey to date, with the basswood yet to come; thinks he shall run over two hundred pounds from some colonies. Friend Shore certainly has better luck in coaxing bees to bring in honey than I have here in the city.

Very truly yours, H. Townsend.

Nashua, N. H., July 7, 1883.

The first and second numbers of the Apiculturist are received and read. Judging from the contributors and the energy and spirit of the editor and kindness, if meted out to all others as to myself while at Salem, success is sure. Bees are booming now.

Yours truly, Geo. Williams.

Baldwinsville, N. Y. June 30, 1883.

Dear Sir: I am well pleased with your Journal. I would not take ten times the cost of it for what I have already learned. What it contains is of practical importance to every bee-keeper. Yours truly,

A. H. Marks, M. D.

Kingston, Texas, June 30, 1883.

Dear Sir: Nos. 1 and 2 of the American Apiculturist have been received, and carefully noticed. The editorial ability and typographical appearance are worthy of the highest commendation. It is filled with able, practical articles on bee-culture from the most talented bee-masters in America. Either number is worth the subscription price for one year.

Wm. R. Howard,
Sec. Tex. Beekeepers' Association.

Hallsville, Mont. Co., N. Y., June 24, 1883.

Dear Sir: I commence extracting to-morrow from Alsyke clover; "bees booming." Alsyke is the stuff. We have about seventy-five acres of Alsyke clover within range of my one hundred colonies here.

Yours truly, F. D. Woolver.

Fort Plain, N. Y., June 28, 1883.

Friend Locke: I am very sorry that I cannot write anything for the American Apiculturist at present, as my five apiaries of about 100 colonies each, with only one boy for help, will not give me even an hour's spare time. I must state to you, however, that so far, the American Apiculturist suits me better than any other bee journal published in the English language, as every line in it is worth reading while other bee journals contain too much valueless matter.

Yours truly, Julius Hoffman.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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Those wishing special rates will please correspond with the Editor.

All communications should be addressed to S. M. LOCKE, Salem, Mass.

EXPERIMENTAL NOTES FROM MY JOURNAL.

BY L. L. LANGSTROTH.

THE time required for the development of queen and worker bees from the egg is a point of much importance in practical bee-culture. The following experiments to determine it are taken from my private journal begun in 1852.

July 24, 1863. At 12 M., took an Italian queen from a large stock, and put her with bees enough to form a strong nucleus into a box having six small frames. The two central ones were filled with worker comb, built this season, from which nearly all the brood had just hatched; the others were well supplied with honey and bee-bread.

2.45 P. M. Saw no eggs; queen upon a central comb evidently preparing to lay.

3.15 P. M. A few eggs; judge that the queen began to lay about 3 P. M.

25th, 12 M. Removed the queen.

28th, 9 A. M. One queen cell begun; the larvæ are plentifully supplied with jelly.

August 1, 6 A. M. Five or six workers apparently just capped; one queen cell almost capped.

7 A. M. One queen cell capped; the nucleus has been kept strong in bees, and all the other conditions have been favorable. All of the eggs (about 400 in number), were laid in one of the new worker combs, and although the interval between the laying of the first and the last egg could not have exceeded twenty-one hours, the development of the larvæ is more unequal than might naturally be expected.

12 P. M. Another queen cell capped.

8th, 5 P. M. A queen just hatched. Frequent examinations were made for some hours after the nucleus was formed, and today, at intervals not exceeding

half an hour. While engaged in these experiments a queen hatched in each of two strong stocks in between three and four hours less than ten days after the removal of the old queen.

10th, 10 P. M. All the queens but one have hatched and been removed.

11th, 5 A. M. The last queen has hatched; her pale appearance shows that she can be only a few hours old. Her cell was on the edge of the comb and the egg was probably among the last laid. The weather has been hot continuously, day and night.

12th, 5 P. M. Two workers hatched. The colony has been examined at intervals of not more than half an hour.

13th, 5 A. M. Workers hatching freely.

14th. All the bees in the central cells have hatched; there is only a rim of two or more cells wide still unhatched.

15th, 6 A. M. Thirty unhatched. 10 A. M. Twenty, every one on the extreme outside of the circle which contained the eggs. 5 P. M. Thirteen.

16th, 6 A. M. Five. 3 P. M. The last worker gnawing out.

During the whole time of these experiments, the thermometer ranged, by daylight, from over 70° to over 90° Fahr.; and as the colony was never opened when it was below 70°, and seldom when it was not nearer 80°, there seems scarce a possibility that the development of the larvæ could have been perceptibly checked.[1]

No experiments were made by me to determine whether black and Italian bees may not slightly differ in the time required for their respective development. My experiments on drone eggs were unfortunately not so successful, and determine nothing more definitely than that the drones hatch in about twenty-four days.

The experiments above detailed warrant the following conclusions:

1. Bees may begin to build a queen cell in less than four days after the egg was laid in a worker cell.

2. Queen and worker larvæ may have their cells capped over, in at least seven days and fifteen hours after the eggs were laid.

3. A perfect queen may hatch in fifteen days and two hours from the time the egg was laid in a worker cell.

4. A perfect queen may hatch in three or four hours less than ten days after the removal of the old queen from the stock.

5. A perfect queen may not hatch, even under very favorable

[1] On the 17th of Feb., a queen hatched in a few hours more than twelve days after her mother was accidentally killed, in examining the stock. The colony was a small one in a hive poorly protected, and the weather quite cold the most of the time she was maturing.

On the 22nd of Nov. a perfectly developed queen hatched in a small nucleus in not over sixteen days from the egg; the days were quite cold, and the nights generally frosty.

circumstances, until nearly sixteen days and a half after the egg could have been laid in a worker cell.

6. A worker may hatch in nineteen days and two hours from the egg; and there may be an interval of precisely four days between the time the first queen and the first worker will hatch.

7. While most of the worker eggs may hatch in less than twenty-one days from the egg, some may not hatch before twenty-two days and three hours.

8. The eggs of the queen bee do not necessarily hatch at precise intervals from the time they were laid, any more than all the eggs placed at once under a hen hatch simultaneously.

July 27, 1883. To-day a pure black queen was brought to me. She came with a swarm into the apiary of a friend—probably from the woods. How many associations the sight of her revived! For more than fifteen years I have not seen a black queen and was surprised to learn that a single pure one of this race could be found in this vicinity. Her opportune appearance and my restored health may enable me to repeat my experiments with black bees, and if I am successful, your readers shall have the results.

Oxford, Butler Co., Ohio,
July 27, 1883.

THE BAY STATE APIARY.

By S. M. Locke.

The well known Bay State Apiary at the home of the veteran queen-dealer of the United States, Henry Alley, whose name has become a household word wherever practical beekeeping is known,—the apiary from which has emanated the only complete scientific and practical method extant of rearing queen bees, is quietly and peacefully nestled in one of the most beautiful and picturesque towns of the old historic Bay State, almost beneath the shadow of old Bunker Hill, about twenty-two miles from Boston.

It is here that Mr. Alley has spent a busy life of more than twenty-five years devoted to his cherished and beloved pursuit, and established his method of queen-rearing as given in the "Beekeeper's Handy Book." Here, in company with Mr. Alley, I have spent some of the most pleasant and profitable moments of my life in searching out some of the rich treasures of Nature's vast storehouse.

It gives me pleasure to be able to present the readers of the Apiculturist with so good a likeness of Mr. Alley and his apiary.

The latter represents only a portion of his home queen-breeding yard, with his house in the background, a few full colonies in Langstroth hives, and the nucleus hives with the cone-feeders ad-

justed. Mr. Alley may be seen in the foreground at the right, his son at the bee-house door, and your "humble servant" standing near.

Most of the full colonies are out of range and could not be shown. Mr. Alley has several other mating yards away from home, and now has from two hundred to three hundred nuclei in operation.

Mr. Alley is a plain, practical every-day sort of man, a true and and devoted friend, hospitable and kind; and is most justly and fittingly styled, by one of our prominent apiarists, master of queen-rearing. Any beekeeper who may be so fortunate as to visit him will long remember the pleasant and profitable bee chat that he may have had with him.

In experimenting with the bees in his apiary he is thorough and practical, seldom giving to the public anything until it has proven with him a success.

My personal acquaintance with him has been a long and pleasant one, including a period of over fourteen years, during which time he was to me both a teacher and friend.

Sitting at his feet I learned my first lessons in beekeeping, and I have always found him ready and willing to impart to me any information which would help me to realize my life object of mastering practical apiculture in all its various branches. True, I have gleaned much information from bee literature, associations, conventions and other sources; but, notwithstanding this, I consider it a duty and a privilege to state that I am more indebted to him than to any other for a systematic knowledge of a study so dear to me.

THE BAY STATE APIARY, WENHAM, MASS.

The method of queen-rearing as taught by him in his "Handy Book" is, as yet, comparatively unknown, and has cost him twenty-five years of hard study and a vast deal of careful experimenting; and

indeed some time will elapse ere the benefits and effects of its teachings will be fully appreciated. We have advanced most wonderfully in every other branch of apiculture, while queen-rearing has seemingly been neglected, or has (so to speak) lain dormant; but a new interest has been awakened which shall culminate in the full light of a better knowledge of one of the most interesting and important branches of this science, viz.: that of the improvement of our races of bees.

MR. HENRY ALLEY (PROPRIETOR OF THE BAY STATE APIARY).

More than twenty-five years ago, prior to the introduction of the Italian bee, and before the American Bee Journal was published, Mr. Alley established the Bay State Apiary and commenced queen-rearing in common with Quinby and Langstroth, whose names have become immortalized on account of the invaluable service that they have rendered to apiculture.

He had been rearing queens but a short time when, Yankee-like, he became dissatisfied with the methods then in vogue and instituted a series of experiments which extended from that time until he completed the system which he has given in the "Handy Book," and which I believe to be original with him; a system which, if put into practice, carefully and thoroughly, will prove of vast importance and a lasting benefit to advanced bee-culture.

At first he began (over twenty-two years ago) by fastening strips of brood to comb and allowing the bees to build cells from it. This he found (as have many others) to be impracticable; but not discouraged, he continued his experi-

ments discovering at last that the bees must be properly prepared to build cells before the brood was given them (it took him years to find this out), and continuing step by step he "added knowledge to knowledge" until at last he found that he had practically systematized and could control the whole business of queen-rearing from the proper selection of the breeding stock to the successful shipping of the queens.

Last fall Mr. Alley decided to publish his method in book form and give the beekeeping public the benefit of his study and experience, and the work is before you. I will not here descant upon its merits; the fact that Mr. Alley is its author should be a sufficient guarantee of its value and worth, and the beekeeper who wishes to master his calling and fails to secure a copy of the "Handy Book" can have but a vague idea of the value of knowledge. I would give double the cost of any of the standard works on apiculture in order to secure them, and why? Because they are records of the life experience of their authors and for this reason worth many times their cost.

It is thought by some that Mr. Alley obtained his ideas from experiments which they had given to the public a while ago; but his method of queen-rearing does not consist merely in properly preparing the brood and giving it to the bees. On the contrary, it is made up of a combination of principles, beginning (as I have before stated) with a proper selection of choice stock, and passing through all the different stages of progress until the queens are mated.

Being thoroughly conversant with his method of queen-rearing, and spending, as I have, a great deal of time in his apiary, noting the progress and results of the experiments which he is always trying, I feel warranted in stating (as I have) that I believe that he originated this method and that I never saw or heard of queens being reared in this way until I learned it of him.

There may be some who will question my motive in writing to such length in this article; to these, and indeed to all, I would say that my only interest is that of benefiting my brother beekeepers, and the time will come when all will agree with me in this. I consider that there are yet many things to be overcome ere we may say that there are not great possibilities in store for us in the future; and it is only by bringing to light and disseminating new facts that we advance.

Any brother beekeeper who may originate any new method or principle which will prove a benefit to apiculture will find that we shall endeavor just as earnestly to place it before our readers as we have this matter. We propose to treat all alike so far as possible, and hope ever to be found on the side of justice and right.

The whole face of nature may be covered with the most luxuriant

and valuable honey-flora, and its thousands of heaven-perfumed blossoms may be overflowing with the precious nectar, and yet their aroma may waste on the summer air unless the bees are properly fitted and prepared to secure it.

I claim that whoever presents the beekeeping fraternity with new and better light upon this subject, or gives to us a better strain of bees, is a public benefactor and adds to the public knowledge means for increasing our individual and national income, and assists in making apiculture one of our permanent and remunerative national industries.

With L. C. Root and others I consider that coming years will develop new and more valuable methods of securing surplus honey and of improving our races. I can but quote the words of one of the world's greatest scholars, "There is room up higher." Go on, invent new appliances and establish new and better methods, dig deep into practical beekeeping and bring to light new and interesting facts, thereby aiding to make apiculture a safe and remunerative vocation.

SYMPTOMS OF FOUL BROOD.

By D. A. Jones.

In several communications lately received the question has been asked: "What are the symptoms of Foul Brood, and how shall we detect it?" Should any persons imagine that they have foul brood in their apiary, and do not feel sure of it, if they cut out a piece of comb, say three or more inches square, wrap it up in several thicknesses of good paper, and enclose it in a tight box to my address, I will inspect it and report. I have received many specimens of what the sender thought was foul brood, but few of the specimens received have been genuine. Larvæ may often be found in a peculiar state when it might be mistaken for foul brood; when the brood has been chilled or neglected, which latter sometimes occurs in freshly made nuclei, where too many bees have returned to the parent stock; where sufficient bees have not been put in to care for the brood; where the honey is consumed and there are no old bees to gather more, or from sundry other causes. Cases of chilled, starved, or neglected brood can always be distinguished from the genuine foul brood, as only the larva usually dies and shrivels up, the skin retaining its toughness to such an extent that by it the larva may be removed.

There is also another disease of the larvæ which is sometimes found both in Europe and America, which is more like foul brood than any of the above, and which frequently deceives those who we might claim should be good judges, but which, however, is not the genuine article. It is a dying of the brood both before and after it has been capped over. The appearance of this and the genuine is much the

same during the earlier stages of their existence, but the former is usually removed by the bees and no further trouble ensues. I know of cases where nearly a half of the larvæ has died and the owner fearing that he had the genuine foul brood, had begun burning some of the colonies thus affected, and had I not remonstrated the other affected ones would have followed in the same wake. They changed the queens and it disappeared.

The genuine foul brood will be detected usually, first by finding dark, sunken cells. Soon after, the bees pierce them, making a small pin hole in the centre of the capping. Apparently they then leave in disgust, and they can hardly be blamed as by this time the cell generally contains a thick, brownish, ropy matter that seems to adhere tenaciously to the bottom of the cell. As it grows older it recedes back from the front of the cell almost covering the septum: if you try to remove it, it seems to pull or jerk back from the pinhead, as if it were determined not to be removed.

Should there only be a few cells it might be a little difficult to detect the smell readily; but, if much of the brood is decayed, a most disagreeable odor comes from the hive. Before this stage is reached other hives will no doubt have become affected. Beekeepers should watch carefully, and if symptoms of the disease become manifest, they should immediately commence the cure of their colonies by starvation as set forth in a late issue of the journals. If the work is properly done the disease is very easily cured and with very little loss in time either to operator or colony.

Beeton, Ont.

BEE-CULTURE IN THE SOUTH.

By G. W. Demaree.

III.

As the demand for honey increases, its production will increase. This is the common view of the case, and is certainly true, but a more encouraging fact to the producer is, that past experience shows that increase of production is favorable to increase of consumption. This has been my experience at least. Five years ago I could not sell at my apiary fifty dollars worth of honey in a season, while now my retail sales at my apiary storeroom has reached as high as twenty or twenty-five dollars in a single day.

Honey is a production of the earth, as truly so as is cane or maple sugar, and in my opinion as much depends upon the location suitable for its production, as is the case in the production of the latter article. The greatest of all questions then, in the mind of the specialist, in the business of honey producing, will be "locality."

If I were to ask what it takes to constitute a good location for the culture of the honey bee, and the production of honey, the general

answer would be a "location where white clover and basswood or linden abound, supplemented with full honey producing plants." So far very good; for, without these, or their equivalent, honey production must be a failure. Nevertheless, there are other important adjuncts to a good location for the specialist, but there is none more important than a congenial climate in which bees can be wintered cheaply and with absolute certainty. The matter of climate is not so important with those persons who keep bees in connection with other pursuits, because if they meet with disaster in wintering they have something else to rely upon for a support. But it is different with the specialist. His all is invested in his apiary, and what a load of care and anxiety it would lift from his mind to feel assured that his apiary was resting safe and waiting for the approach of spring and the first opening flowers.

There are other things of value besides money. The specialist in apiculture is as much entitled to a life free from galling anxiety as other people are, but to this he can never attain in a climate where his property is in peril two-thirds of the time. The honey bee is a native of a warm climate, and is at home in the south. Notwithstanding the fact that some persons have attempted to cast suspicion upon "southern-bred queens," I am confident that the time is not far distant when the superior merits of southern-bred queens will be fully recognized by all well informed apiarists. Northern writers on bee culture agree pretty well that the average life of the worker bee does not exceed forty-five days. Some give them a little longer lease of life. In our climate they live much longer than that. I have had bees working in the field at nearly ten months old; of course these bees had passed through the winter months.

There is a curious fact in connection with climatic effects on bees, which I have never seen mentioned in print, and that is bees breed earlier and more unsparingly in the spring, in a cold climate than they do with us where the climate is better suited to their habits, and the preservation of their health and vigor. Many northern writers have boasted that their colonies had from three to five Langstroth frames filled with brood in the month of March and while in winter quarters. Such a state of things would sound like an idle tale, if I were not aware that it is abnormal in character — the result of climatic causes.

Such excessive brood-rearing at that season of the year is positive evidence of decay and approaching ruin. The queens and bees instinctively comprehend their situation, and make an exhaustive effort to counteract it, by overmuch brood rearing. Such a state of things is not peculiar to the honey bee, there are many things in nature analogous to it. With this abnormal state of things present, we are

not surprised at the complaints of "spring dwindling." In a congenial climate the queens lay but little till pollen begins to be gathered by the bees, and from this time with favorable weather, the brood is spread with marvellous rapidity. On the first days of last April my colonies did not average over one hundred square inches of brood to the colony, and in six weeks from that time — say by the tenth of May — they were in good working trim, and stood up to the locust harvest in the most satisfactory manner.

Bees to be in a normal condition in winter, should rear but little brood till the proper time arises for active work in the spring. Such bees are full of vigor, and in the best possible condition to forward the best interests of the colony.

This state of things is found in perfection in the southern apiary. New York's great editor's advice to the young man was to "go west." This was well enough where the object of the young man was to produce corn, wheat, etc. But if his object is to cultivate the honey bee, and to produce honey for the market I would change the advice a little, and say "young man, go south."

Christiansburg, Ky.

PLAIN TALKS ON BEE-CULTURE.

By J. E. Pond.

IV.

BREEDING BEES FOR WINTERING.

Friend Alley writes well and so far as he goes, in his article on pages 13–15 of Apiculturist, makes out quite an argument; the trouble is, however, that it is all theory. Theories in regard to any subject are valuable, only as they coincide with truths; it is one thing to build up a theory from facts, and altogether another thing to set up a theory, and then endeavor to fit the facts to it: in the one case, the theory will "do to tie to;" in the other it should be taken "*cum grano salis.*"

I do not mean to disparage friend A's ideas, or to hold them up to unnecessary criticism; but I do desire, in a spirit of candor, to analyze them, and by applying the test of reason, endeavor to ascertain just how far it is practicable to follow them. And right here let me state a few facts, drawn from my own experience, with my own bees during the last winter. In November last, I had seven colonies; six of them pure Italians on standard L. frames, and one hybrid in a box hive. One of these colonies lost a queen in July; I reared a queen to take her place, but although she flew out every pleasant day for twenty-six days, she did not succeed in meeting a

drone, and I finally was obliged to procure a queen from Mr. Alley to take her place. Of course the colony was reduced in numbers, and as the queen referred to was introduced very late, the colony went into winter quarters with almost entirely old bees. Every colony came safely through the winter, and none of them had used more than from twelve to fifteen pounds of stores. They all bred up rapidly, and drones were flying from each hive by the latter part of April. Now, viewed in the light of friend Alley's article, one might suppose that my queens were bred especially for wintering; such could not have been the case, for they were all purchased by me indiscriminately, from various queen breeders. One was imported, supposed to be two years old; one was a dollar queen from A. I. Root; two were selected daughters of imported mothers, from A. I. Root; two were from friend Alley, and the hybrid was bred in my own yard from a black colony. Now these queens could not have been bred with especial reference to their wintering qualities (and let me say right here, that all of the Italian stocks are very light-colored), as they were bred for sale, and as queen breeders usually breed them. I trust that more regard than has yet been paid to the subject will be given to the matter of applying business tests to queens by breeders, and also that more attention will be given to hardiness as a test, and not so much stress be laid upon the matter of color and rings. Not that I wish to decry rings; three of them are absolutely required as a test of Italian purity, and no other test of that purity can be considered absolute; but I fear that many in the endeavor to pander to the taste of those who want handsome bees, have drawn their breeding stock down too fine, by in-and-in-breeding, in the endeavor to produce the satisfactory color. To come back to the matter of friend Alley's article, my own opinion is that more depends upon the manner in which we prepare our bees for winter, than upon any particular and peculiar quality of hardiness that one strain possesses more than another. I have never yet lost a colony wintered on standard L. frames, either in single or double walled hives, and I have always wintered my bees on their summer stands. My invariable rule is to supersede all queens that have passed into their third year. I always force queens to breed as late as possible, so that the majority of the bees I winter are young. I crowd my bees with division boards, upon the least number of frames they can cover, and consider seven frames sufficient for the largest colony I ever saw. I want the cluster in cold weather to reach, if possible, from the top of the frame to the bottom board; I always give an air space of from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch above the frames. I prepare my bees for winter, by doing as above, then cover the frames with a porous mat; loosely woven duck I prefer, although common

burlap answers very well. On top of the mat I put some six or eight inches of forest leaves, and have a 1½ inch ventilating hole, in each end of the cover. I prefer a double walled hive with 1½ inch dead air space, as I consider dead air a better non-conductor of heat, than chaff, saw-dust, or any other kind of filling; I consider a single walled hive safe, however, if it is wide enough to allow a 1½ inch division board to be placed on each side. My apiary has a hedge on the north and west sides, and I deem a breakwind of such a nature invaluable. From observations made during the last eighteen years, I fully and firmly believe that bees can be wintered safely on their summer stands, by making use of the above precautions — all of them — with such queens as are ordinarily sold by experienced breeders. I do not know but some of the above precautions might be omitted, and success still follow, but I do not dare omit any one of them myself, and cannot advise others so to do. It is possible that some day, queens will be so well bred as to hardiness, that their brood will winter safely, without precautions of any kind being taken; but, until some way can be devised whereby we can avoid the promiscuous mating with drones, to which we are now imperatively obliged to submit, I fear that, unless we do take just such precautionary measures as I have advised, we shall suffer loss, winter after winter, that might be avoided with slight expense, and very little trouble. So far as I myself am concerned, "*I have solved* the winter problem;" go thou and do likewise.

Foxboro, Mass., May 30, 1883.

EDITORIAL.

There is a question of great moment to which we would call the attention of our readers. For a long time many of our most thoughtful and prominent apiarists have endeavored to impress upon the minds of beekeepers the necessity of establishing in the United States a national beekeepers' association, which should be authority in the decision of every question of importance which might be brought before us for consideration. Although our country leads the world in advanced apiculture, yet as regards a thorough organization of our ranks and a systematic method of disseminating knowledge upon this subject, we are at fault. There are many reasons why this is so, and it behooves us, at the coming convention at Toronto, where a large number of our leading men will assemble from all portions of the country, to consider this matter thoroughly and see if we cannot devise an improvement. The questions of a standard hive, frame, and section box have long interested those whose minds reach beyond the present and who contemplate the numbers who are yet to engage in the bee business. It is not enough that any certain hive, frame, or box may be adopted as a standard

by any state or county association which is struggling to bring about this needed reform, but it is a question which should be decided by a mass meeting of the leading apiarists from all sections of the country; and this *never* can be accomplished until we have a national association founded upon solid principles. Any supply dealer who runs a large business may adopt one style of hive with frames and sections to correspond, and by manufacturing large quantities be able to sell them at a price below that given by others who do not run a specialty. This obliges smaller dealers to follow; hence, the goods of the larger dealer must to a large extent become a standard.

It is with pleasure that we look upon the endeavors of the members of the N. E. B. A. to grapple with this question, and indeed this association has taken advanced steps in the right direction, and yet the matter must be brought before a national tribunal. The English beekeepers' Association is supported by those who have large means and who are able to give liberally to the support of the association, but we are confident that when we systematize the matter of associations and so establish and arrange it that we have a live and solid national association and an auxiliary in every state in the Union, which is but a portion of and subject to the national association, sending delegates each year to a convention held by the national association; then, and only then, can we properly disseminate the knowledge of beekeeping and decide questions of importance.

From an extensive acquaintance with the leading apiarists of this country and a knowledge of the needed reforms, we feel certain that numbers of our beekeepers who now are holding back would enter most heartily into the work and support associations of this character. We await further suggestions regarding this matter and hope to meet at Toronto a large number of our apiarists from all portions of the United States who have given this subject serious thought. We look forward with great interest to the deliberations of the North American Association. Let us rally to the work and see if we cannot accomplish the desired results.

BEE NOTES.

In many portions of our country, when this number of the "Api" reaches our readers the honey season will almost have passed, and the labor of properly preparing our colonies for the coming winter will be the next duty. Our last number contained invaluable advice regarding the honey market and shipping our honey, and this number is largely devoted to the coming preparations for winter.

As the nights grow cool contract the surplus room, and if necessary feed the bees to keep them breeding and active. After the surplus honey is removed and properly stored, examine your bees and see that the queens are all right; contract the brood-chambers, giving

the bees only what combs they can cover when the nights are cool; see that the bees have stores enough to winter on; place the chaff packing on the sides and the cushions over the frames as soon as the first frost comes; and then let your bees remain quiet. In queen-rearing, the preparations will differ from this as there will be nuclei to unite and other work which belongs strictly to queen-rearing. All surplus combs should be hung in racks in the bee-room prepared for the purpose, where they may be kept clean and secure for next season's use. The honey should be slung from unfinished sections, or, which is perhaps better, they may be given to the bees to clean out, after which they should be carefully piled up in the store room.

Remember that system is a "sister to success." When necessary, contract large entrances and stop upper ventilation. Provide against robbing and be careful not to have loose honey or pieces of comb around the apiary with honey in them, or there will be "war in the camp."

CORRESPONDENCE.

Editor of American Apiculturist:

Dear Sir,

The weather with us has held cold and unfavorable since basswood has been in blossom, so much so that it is a surprise that bees could accomplish much, yet in spite of these unfavorable circumstances, they are doing fairly well.

In one week during which time the thermometer went down to 50° the warmest night, and varying from that degree to a slight frost one night, one of our yards of forty stocks gave us over 2800 lbs.

This does not favor the theory that warm nights are essential for the flow of honey.

We have never realized the benefits of extremely populous stocks, managed on the non-swarming plan, as during this unusually cold season; while stocks of medium size do not commence work until late in the day and accomplish but little, very populous stocks give results as above.

For the past two or three days the weather has continued as cold during the day as during the night, with cold rain, and the bees have hardly ventured from their hives.

Unless we have a change soon the basswood will be out of bloom and our crop of light honey cut very short. The prospect for fall blossoms is good, particularly from golden rod.

L. C. Root & Bro.

Mohawk, N. Y. Aug. 6, 1883.

EXCHANGES.

Bee Pastures in Florida, by Dr. H. S. Allyn.— In nearly every item in the papers in regard to bees in Florida, the statement is made that the coast is the only part of the state where bees do well. Now, while it is well known that the Florida coasts are among the best bee-fields in the world, it is but just that the facts in regard to other parts of the State should be known.

While I do not claim to be an authority on beekeeping, and have only resided in the State two years, as no one else has seen fit to do so, I wish to make a few statements in regard to the industry in this

vicinity, and knowing no better way to reach the mass of interested readers, I send them to the popular "Dispatch."

I make no claim that the vicinity of Orange City is anywhere near as good a location for bees as the coast-side of this county (Volusia). I do maintain that beekeeping can be made profitable here, and materially aid in making both ends meet while waiting the bearing of an orange grove. Any one coming to the State with one or two hundred colonies, intending to make a specialty of bee-culture, I would advise to locate either on the Halifax or Indian rivers. But to those coming to the State to engage in orange or vegetable-culture, who have been used to bees, in the North, and who have made honey a chief article of diet, and who think that they cannot come to the healthy, high, pine land of Florida without giving up their honey, I would say bring your bees along; or, if too much trouble, buy after you get here, but don't fail to come, or to keep some, through the mistaken idea that they will not do well here.

I cannot speak for any other part of the State or county, as my observations have been confined to this locality.

Orange City, being situated, as it is, near the southern end of the "Orange Ridge," is but two and one-half miles from the St. John's, on the west, and about two miles from the Scrub on the south. These furnish good pasturage for bees every month in the year. Besides this, within a radius of three miles from the post-office, there are 3000 acres of orange grove, one-third of which is in bearing. During the weeks they are in bloom the flow of honey is immense.

While speaking of Orange City, it may be well to state a few of the advantages it offers to settlers, even those who have no idea of keeping bees. As I have said, it is two and a half miles east of the St. John's, and four miles south of the 29th parallel. It is located upon the high, rolling, pine land of first quality. It is incorporated and has a population of over 1000, and the surrounding country is thickly settled. It is very healthy, as the ridge of hills between it and the river shuts off the miasma from that source. There is but little sickness throughout the year. July 7th, the hottest day of the season, the mercury stood at 100°, at noon, but owing to the ocean breeze, *white* men worked out in the open air all day without any discomfort. Society is first-class, as it is made up of intelligent people from nearly every State in the Union. The city council has levied a tax of three thousand dollars, to build one of the finest schoolhouses in the state. There is no saloon in the place, and although a lock-up has been built, for some time it has had but one lodger. Its laws prohibit cattle and hogs from running at large. It has good water and plenty of it, at a depth of from twelve to thirty feet. All fruits will grow here that will grow north of Indian River. Any one coming up the St. John's to settle will do well to stop at Blue Spring, our landing, and give us a call, for seeing is believing.

But to return to bees. When I first began to inquire about them of the natives, I was told that they would not do well, as the moths destroyed them. And no wonder, as they were kept in cypress "gums" and old boxes, and were "robbed" by having the comb, honey, brood and all cut out, thus weakening them and giving the moths a chance to get in their work, which they did by destroying the rest of the comb and brood, the bees dying off in a very short time.

These difficulties are very easily overcome by using movable frame hives and employing improved methods. But facts prove more than theories, so I will report what has occurred here. Last January a neighbor bought six swarms, and by good management has increased them to twenty-five good swarms, which he valued at $175. I do not know the amount of his honey-yield.

We started the first of February with eight colonies, which were light, as they had been kept in boxes. From these we now have twenty-five good strong swarms. We have taken 300 pounds of honey and could have secured as much more had we received our extractor a month sooner. Extracted honey sells for fifteen cents, and comb honey, in small boxes, for twenty-five cents per pound. I think I have demonstrated that bees *can* be kept elsewhere than on the coast.—*Florida Dispatch.*

HONOR TO WHOM HONOR IS DUE, BY CH. DADANT. — In the Bulletin, No. 37, Mr. Fournier reproached me for having hinted that the French Debeauvoys hive was not practicable. He wonders that, a Frenchman, I attempt to lessen, to deny even, the worth of the first French apiculturist.

I have not only insinuated, I have stated, that the Debeauvoys hive has not been able to sustain the proof of numerous tests which have been applied to it. One is allured if he boasts of it by merely looking at it, as it is abandoned after trial. "Mr. Debeauvoys has secured 2500 followers. Ah! well, 2475 of these followers have proved turncoats." (Hamet, Apiculteur, 1868–69.)

How is it with the twenty-five followers? I challenge Mr. Fournier to mention a single one. As for Langstroth, who has received neither medal nor recommendation of savants, his hive has not only made its way into the United States, but into Europe. It is this hive, whose principal merit is that it opens at the top, which has made the fortune of the apiculturist of the United States, and which has placed them, in apiculture, at the head of all the nations of the world.

I am a Frenchman, it is true, and I am proud of it; but this title, with which I am honored, does not impose upon me the right to praise that which is evil, or to depreciate that which I know to be good.

If I have spoken of Debeauvoys, it is my opponent that has caused and still compels me to announce that Langstroth has copied Debeauvoys, and to cite him as the first French apiculturist and his Guide as an excellent work. I should like to permit the worthy Debeauvoys to sleep in peace with his hive and his book; Mr. Fournier has not permitted it.

The Debeauvoys hive, such as he has described in the first edition of his Guide, such as I saw at the Exposition in 1849, was not like that which was deposited at the Conservatory of Arts and Trades that Mr. Fournier described. The first hive had the form of a house, having a roof with a single slope, and it is known that Debeauvoys preserved this form for a long time; for, in the opinion of the editor, in the sixth edition of the Guide, published fourteen years after the first, in 1863, we read on p. 3, "this hive which has no longer a sloping roof, is made of wood! . . . ."

The frames of the first Debeauvoys hive had the oblique form of the hive and were about $17\frac{1}{2}$ inches high at the back, $13\frac{3}{4}$ inches on the front, with a breadth of about 13 inches. They rested by their lower extremities on the platform, and fitted exactly in the hive, without

allowing a passage between them and the hive, neither on the top, nor on the sides.

In the hive at the Conservatory, the frames even touched the top of the hive, according to Mr. Fournier.

In the sixth edition, Mr. Debeauvoys leaves a space of about one-fourth of an inch at each end of the frames. But this space is insufficient, and is reduced to zero, when the sun dries the doors where the grain of the wood runs from top to bottom. They contract, approaching the walls to which they are attached. We know that a board measuring about thirteen inches shrinks about $\frac{5}{16}$ of an inch in width in seasoning, and the space at each end is thus disposed of.

Mr. Fournier will be much puzzled to cite a single feature of the Debeauvoys hive which Langstroth has copied.

The Debeauvoys frame rests on the platform; that of Langstroth is suspended by the elongations of the top bars.

The Debeauvoys hive opens at the side; the Langstroth from the top.

The Debeauvoys frame has two stories in the body of the hive; the Langstroth is shallow. This inventor has given the low form in order that the frames may be more easily handled.

The Debeauvoys hive is made of upright boards; the Langstroth of horizontal.

The Debeauvoys hive has no portico; Langstroth has one to his hive.

Debeauvoys has many entrances; Langstroth has only one entrance occupying the entire width of the front of the hive.

There is then no similarity between the two hives. It is not even possible to imagine two hives more dissimilar. Likewise, how different have been the results! The Langstroth hive, or its principle, is the only one in use in the United States. It needs no great prophet to announce that his principle, the movable top, will prevail in the future over all other forms.

It has adherents even in Germany and in Italy where it is sustained by Dr. Dubini, whose reputation as an apiculturist is world-wide. Langstroth, then, has rendered an eminent service to the apiculturists of the entire world in inventing his hive.

. . . . . .

Mr. Debeauvoys, in his book, seems to have gathered all the errors current at the time in which he wrote, ignoring the ideas, which, like parthenogenesis, were already universally admitted.

Is it necessary to cite some of the gross errors contained in this Guide, excellent according to Mr. Fournier?

Debeauvoys believed that the eggs of a queen not fertilized are sterile.

Elsewhere he said that the queens which have failed to meet the drones do not lay eggs.

That the eggs which are hatched from queens are different from the eggs of workers.

That the queen is fertilized the next day after her birth.

That a young queen lays worker eggs exclusively during eleven months following, then drones, and twenty-one days after the eggs of queens.

That a queen lays 6000 eggs a year.

That the queens lay eggs all the year.

That certain young queens refuse to lay in the old combs.

That the males lay.

That the workers live a year.

That they defend the queen.

That there are two kinds of workers.

That there is profit in working bees for wax, etc.

It seems to me that I have cited false statements enough to take away the excellent qualification that Mr. Fournier gives it.

Mr. Fournier places on the account of my unfitness the stings that I have received, in handling the combs of my hives at daybreak, and reproaches me for placing this unfitness to the account of Mr. Debeauvoys. Now, not only has this apiculturist given me this counsel orally, but in his books. . .

Mr. Fournier wishes to reinstate the Debeauvoys hive. He has a perfect right to do so, and least of all I shall have no objections. We shall see if he succeeds in causing its adoption. — *Translated from Bulletin de la Société d'Apiculture de la Somme.*

Fertile Workers, by Geo. W. House.—This is a subject I dislike to write upon inasmuch as I entertain an opinion different from that given by the various authors of bee literature. But being asked for my views on this subject, I will endeavor to comply with such requests, hoping that it will be the means of bringing out discussion that will be of benefit to us all.

What are fertile workers?

They are workers sufficiently developed to be capable of laying eggs, but these like those of a virgin queen, always produce drones.

How are fertile workers produced?

Langstroth says: "It is a well known fact, that bees often begin more queen cells than they choose to finish. It seems probable to me, therefore, that when rearing queens artificially they frequently give a portion of the royal jelly to larvæ, which for some reason they do not develop as full grown queens; and such larvæ become fertile workers."

Berlepsch advanced the same theory, or nearly the same. Huber thought that fertile workers were usually reared in the neighborhood of the young queens and that they received some particles of the peculiar food or jelly on which these queens are fed.

Quinby claimed to have *disproved* Huber's theory that they are developed by being reared in the vicinity of queen cells, and partaking of a small quantity of royal food.

Cook seems to side with the Langstroth and Berlepsch theory, but is not decided and gives no theory of his own.

King expresses no theory on the subject. Root, in his "A B C," claims that the organs of a worker bee may become *at any time* sufficiently developed to allow the bee to lay eggs.

I differ with the various theories advanced in regard to the manner in which they are produced. I have seen many cases in full colonies, but as yet I have never known them to exist in a colony that had hatched a young queen and lost her in her wedding flight; such colonies may remain queenless for months, and no fertile workers will make their appearance. This disproves the theories of Huber and Root. The queen cells may all be cut out on the seventh day after the colony becomes queenless, and you will have a case of fertile workers. This will not sustain Langstroth and Berlepsch, although they are nearer right than other writers, and had they experimented further, I believe they would agree with me that fertile workers are produced by feeding royal jelly to larvæ that are about to be capped over.

The bees, being deprived of the means of raising a queen, resort to the next best thing, uncapped larvæ, which may yet take a portion of the royal food before being sealed up by the bees.

Root, in his "A B C," says of fertile workers, "Whenever the beekeeper has been so careless, as to leave his bees destitute of either brood or queen, for ten days or two weeks, you may be pretty sure he will find evidences of their presence, etc."

Alley in his "Handy Book" says "They are generally produced by allowing a colony to remain queenless for a long time, appearing sooner in nuclei than in full colonies." He further says that when the bees ball the queen after returning from her wedding flight, one may know that fertile workers infest the colony.

Prof. Cook says: "The condition that favors these pests is continued absence of a queen or means to produce one.

It seems to be the general impression that they are caused by the colony remaining queenless for a long time. It all occurs between the seventh and fourteenth day after becoming queenless. I have found, in my experience, that a colony may remain queenless after losing its queen on her wedding flight until the colony has dwindled entirely away, and yet no fertile workers make their appearance.

But if the queen cells are cut on the seventh day after the colony becomes queenless, we shall invariably find fertile workers laying when the last of the brood hatches.

It is no sign of fertile workers when we see the bees ball their queen. I have seen bees ball and kill their queen upon opening their hive, and shaking the bees from the comb into a new hive again it frequently occurs that the bees ball a virgin queen after she returns from a successful flight with a drone, and is caused by a change of scent or odor which the queen takes while with the drone.

To get rid of fertile workers, I generally insert in the hive thus infected, one or two queen cells just before they are ready to be sealed. But if this does not accomplish the object, draw two or three frames of brood and bees from the strongest colonies, and insert in the colony containing the fertile workers. The bees will then raise a queen and destroy the laying workers.— *Beekeepers' Exchange.*

NOTES AND QUERIES.

Some time ago we received a tongue tester from friend Martin, but this is the first opportunity that we have had to notice it. The contrivance is certainly ingenious and original, and, where accurate measurement is not essential, it will do very well.

Friend Martin certainly deserves much credit for the invention. We would advise every apiarist to secure one as it is not only cheap, but will prove a great help in the selection of breeding stock. We have been studying on a tongue tester for several years but have not as yet completed one that is accurate or satisfactory but hope soon to be able to do so.

It gives us great pleasure to welcome to our columns an article from the pen of L. L. Langstroth. It has been a long time since he has been able to contribute much for the journals, and we sincerely hope and trust that his health may be restored and that he may be spared to us many years. It is pleasant to have in our ranks one who was a co-worker with Father Quinby — and inventor of the movable comb hive in America. The experiments which he describes are very important and interesting.

Jos. M. McCaul informs us that he has resigned his position with H. K. & F. B. Thurber & Co. as manager of the honey department and proposes to open a store and devote his whole time and attention to the sale of honey and wax. We certainly wish him success and can assure him on behalf of the beekeepers that so long as he will do an honest, square business — shunning every form of adulteration of honey or wax — that he will be supported. We need, in every portion of our country, men who will become interested in the sale of honey, men who will place our honey on the market just as *pure* as when received from the hands of the producer, and who will not for the sake of mere gain defraud the producer and consumer by adding to our honey, *glucose* or any other adulterant.

Friend Pond sends us a first-class report of his apiary. For this season the three colonies run for surplus honey have given him over 500 lbs., and he has increased from seven in the spring to eleven and sold two; he has nine colonies now and wishes to sell three or four of them as he intends to make two or three more. We would state that we have seen queens that were reared from his stock and any one who buys one of his colonies will get his money's worth.

While at friend Alley's a short time since I examined some comb foundation which he had been testing and must confess that although I have handled thousands of pounds of it and used a larger amount yet I never saw any better or that which was worked out by the bees more quickly or perfectly than some Dunham foundation that Mr. Alley obtained from Mr. Taylor of Sinclair, Ill. The foundation was clear, bright and pliable with very heavy side walls, and when worked out by the bees was just perfect. Not one cell stretched or sagged, neither did the sheet warp. We feel that much credit is justly due Mr. Taylor for the excellent quality of the foundation which he sends out.

Friend Jones writes that his reason for not writing more for the "Api" is that he is taking in from 3,000 to 5,000 pounds of honey per day. Surely we would not wish to interrupt such a honey flow as that and, for his sake, would willingly wait some time for an article before doing so.

Last month we published a letter from Mr. Pond relating to our new bee feeder. Our object in doing this was to establish the fact that we originated this feeder. Since we first began to experiment with it over three years ago, several parties have tried to rob us of the invention; and now that we are able to defend our claims we propose to do so, not that we intend to manufacture them, but simply that the beekeeping public may understand who invented the first practical and perfect stimulative feeder. We have disposed of the invention and do not intend to manufacture or sell them, but would call the attention of our readers to the fact that they have proven a success.

The August number of the Bee and Poultry Magazine chronicles the death of the Beekeepers' Exchange. It seems a pity that a journal established under such favorable circumstances and supported by such prominent apiarists should fail to succeed; but a combination of circumstances which would crush any enterprise decided its fate.

Having been in the employ of Mr. Nellis for about two and one-half years, we became quite inter-

ested in the Exchange and shall miss its visits. It has passed into the hands of the proprietors of the Magazine and we trust that its readers will lose nothing by the change. The success of any journal depends largely upon the interest which beekeepers take in its welfare and the support which they give it.

Last month we copied from the Exchange an article on the Evaporation of Honey, written by L. C. Root and read at the N. E. B. A. last January. We omitted the portion which related to the evaporator and samples of honey which Mr. Root had with him there, as we hoped to be able to present our readers with a cut and description of it in this number. Mr. Root has been experimenting with this matter for a long time and finds that the evaporator which he has invented works satisfactorily and that the honey taken from the hive as soon as gathered and evaporated, keeps perfectly. Now, this is a matter of deep interest and great importance and we hope to hear more about it. We shall endeavor, as soon as possible, to give you a picture and description of the evaporator.

We are pleased to welcome friend Langstroth to our columns as one of our contributors, and our readers may expect to enjoy some valuable articles from his pen. It must be a pleasure to him to see that apiculture, for which he has done so much, has assumed such an importance as a national industry and it is our hope that he may be spared to us in good health, for many years to come.

The secretary of the Kentucky Beekeepers' Association sends us the following notice:

The Kentucky Beekeepers Society is called to meet at the Southern Exposition building, Louisville, on Wednesday and Thursday, August 29 and 30. The premium exhibition of bees and honey will take place August 28 to September 1. A full attendance is requested. N. P. Allen, Secretary; G. W. Demaree, President.

Friend Pond, to whom we are greatly indebted for the earnest and hearty support that he has given the "Apiculturist" from the start, has sent to us the following liberal "prize offer" for our readers. For this we most heartily thank him. We have seen some of Mr. Pond's bees and some queens reared from his stock and can truthfully say that whoever obtains a colony will never regret that he has introduced the stock into his apiary. The queens are fine looking, active, and of good size. The workers are well marked, active, and good honey gatherers (see his report on page 92) and the drones are fine.

We trust that our readers will enter into the work earnestly and not only benefit themselves but also assist us in our endeavors to establish a first-class, free and independent bee journal.

PRIZE OFFER.

Friend Locke: As an inducement to beekeepers, or those desiring to become such to interest themselves in the endeavor to increase the circulation of the Apiculturist I will make the following offer.

I will give to the person sending to you before the first day of January next, the largest list of yearly subscribers to your journal, provided said list contains twenty or more names, one colony of pure Italian bees, with young tested queen, in a standard Langstroth frame Simplicity hive. If the list contains forty or more names, I will add to the above a complete

one-half or whole story arrangement, with one pound sections, ready and complete for storage of surplus comb honey. The bees to be delivered at our depot here, securely packed, as early next spring as they can be transported with safety.

JOSEPH E. POND, JR.

Foxboro, Norfolk Co., Mass., Aug. 8, 1883.

QUESTIONS AND ANSWERS.

BY THE EDITOR.

1. About what time in the fall does your last surplus yield of honey cease?

2. After this yield has been secured, and the sections removed, what is the first necessary work to be done with the bees?

3. What time in the fall do you generally re-queen your apiary for the next season by superseding worn-out or worthless queens?

4. In apiaries run for surplus honey do you find it either advantageous or necessary to examine your colonies frequently late in the fall? If so, why?

5. At what time in the fall should your colonies (regarding size of brood-chamber, amount of stores and amount of bees) be properly prepared for the coming winter?

6. What do you consider to be a proper condition of the colonies regarding wintering?

7. Which do you favor, having a large proportion of the bees (preparatory to winter) young or old, and why?

8. Which do you prefer, honey or sugar syrup for winter stores and why?

9. Which do you consider the best time for feeding up your colonies for winter?

10. Do you have the best results from cellar, bee-house or out-door wintering?

ANSWERS BY PROF. COOK.

1. The time our first heavy frost comes, which is about the 20th of September.

2. After this we remove sections at once; feed for winter if necessary. See that every colony has thirty pounds of good capped honey or syrup; see that there are winter passages; remove all but about eight frames (Gallup frames); confine brood-chamber by use of division board; remove frames containing pollen; cover with porous cloth and place at ends and above the bees, large sack of dry sawdust.

3. We replace poor queens any time in the season, just as soon as they show any weakness.

4. We never examine after we have arranged as described above. We then note every condition and supply any want.

5. This is answered in No. 2. At the same time we unite nuclei if desired. These are kept breeding so as to winter well when united.

6. Answered in No. 2.

7. We prefer young bees in fair proportion, for the reason that it seems necessary, and our experiments show that it is. If our bees continue to breed till Sept. 20, and we secure this by feeding if necessary, the bees will be of proper age.

8. I do not care; sugar though is always good, not so honey. If the honey is capped and tastes good I have no fear.

9. Answered in No. 2.

10. In *cellar* decidedly.

Lansing, Mich.

ANSWERS BY J. E. HETHERINGTON.

1. At the time of first frost, or from the 1st to the 12th of September.

2. To know that each colony has sufficient food, bees and a queen that will be certain to do her part *well* the next season.

3. I have never settled down to any one system, but governed by circumstances. Last year I did it mostly at the time of swarming and the balance with queens reared on buckwheat. This season it will be mostly done when the brood from the old queens will be too late to work on buckwheat; the queens to be superseded are now marked; this has been done during the summer. The queens reared on the flush of basswood I consider as best as they are less inclined to breed in winter.

4. I do not. I examine only sufficient to know their need as before stated and supply deficiencies.

5. As early in the fall as possible; late handling of bees as a rule is not wise.

6. This question I could answer at length but have not the time. In this I do not differ from most beekeepers.

7. I should prefer young bees, as having greater vitality they will stand more grief and last longer in the spring.

8. I have generally wintered on natural stores — there is nothing better than *good* syrup of granulated sugar.

9. I would supply stores as early in the fall as possible. My practice has been to do it in October.

10. I have had poor success in wintering for a number of years but think in my locality the cellar is the safest.

Cherry Valley, New York.

ANSWERS BY JULIUS HOFFMAN.

1. About Sept. 1st, at close of the buckwheat season.

2. I cover the frames with a quilt or cushion, which is all that is necessary with colonies worked for comb honey. Colonies worked for extracted honey have to be spaced to the number of combs that they should occupy and if deficient in stores they should be fed at once.

3. About 1st of Aug., at the beginning of buckwheat bloom.

4. I do not find it necessary to examine my bees late in fall.

5. The latest time should be at the close of the honey yield.

6. They should have plenty of bees old and young, well supplied with healthful stores, a good queen not over two years old, and no more combs than they can cover in a cool day of Sept. The combs should not be interchanged after their stores are sealed.

7. They should have a good number of young bees, but not so young that they would not have a chance to fly several times before winter.

8. Would rather have them stored with coffee A sugar, than to let them winter on late gathered, unripe honey.

9. As soon as the honey yield ceases, but not later than September.

10. With cellar wintering.

Fort Plain, N. Y.

ANSWERS BY GEO. W. HOUSE.

1. About the middle of September.

2. The hives should be examined that all may have sufficient stores for winter, and a laying queen in each colony.

3. Worn out and worthless queens should be superseded during August and first of September. This is the time generally chosen by the bees when they themselves supersede their queen.

4. Our colonies are seldom examined after October first, and then only those that have been queenless.

5. About the middle of October.

6. All colonies should have sufficient stores to last until the following April at least. A good laying queen, and bees hatching as late as the 10th of November. The hives should be packed in chaff, allowing but little upward ventilation.

7. For best success I prefer bees hatched after the first of September in this locality, because such bees are of the proper age to stand best our long, cold winters. Do not want many bees hatched after the season becomes so late they cannot fly. I believe such bees cause the colony to become somewhat uneasy.

8. I much prefer sealed honey, because it is the most natural for the bees.

9. During the month of September.

10. We secure best results when wintered out-of-doors packed in chaff, under long sheds, setting the hives on about six inches of chaff or shavings.

ANSWERS BY L. C. ROOT.

1. The date varies much with different seasons and locations. Some of our apiaries afford us no honey after the first to the tenth of August when basswood fails; other locations when buckwheat, golden rod and sweet clover are abundant give some surplus as late as September.

2. To remove boxes and surplus combs, and see to it that by actual weight each stock has in a limited number of combs, from twenty to fifty pounds of winter stores; the amount to vary according to the system of wintering. At this season all ventilation should be closed and larger entrances contracted.

3. We re-queen a colony as soon as the old queen shows signs of failing, no matter at what time in the season. For

the general re-queening of colonies, where the age of the queens is not known, we prefer that it should be done during the flush of the season. Better queens can be reared at this time and they will be more readily received than during a scarcity of honey.

4. We do not favor handling bees late in the season when it can be avoided.

5. As soon as may be after the storing of surplus honey is over, with the exception of removing the enamel cloth or honey-board and supplying its place with proper covering, which should be done when the colonies are placed in winter quarters.

6. Plenty of well sealed stores in a limited number of combs and a fair sized colony of bees of *proper age*.

The hive to have a limited amount of lower ventilation and proper porous covering to allow moisture to escape and to retain the heat.

7. Younger bees are more desirable as they waste less rapidly during the winter and early spring.

8. I would prefer early gathered natural stores. If for no other reason I would prefer this from the fact that there is no certainty of securing sugar for food which is free from adulteration. If sugar is to be used, my preference would be for yellow C, rather than the other grades.

9. If from any cause it becomes necessary to feed, do it as early in the season as circumstances will allow.

10. We have best success wintering in properly arranged cellars.

LETTER BOX.

Oxford, June 29, 1883.

DEAR SIR: I have read with much interest the May and June numbers of the American Apiculturist, and congratulate you upon having already secured so many able contributors. I am pleased with the fineness of the paper and the neatness and accuracy of the typography. Wishing you great success in your new enterprise, I remain, yours very truly.

L. L. LANGSTROTH.

Mr. S. M. Locke of Salem, Mass., the gentleman who contributed to Mr. Henry Alley's Bee-keeper's Handy Book an essay on the new races of bees, has commenced the publication of a monthly journal, the Am. Apiculturist, two numbers of which are upon our table. The articles are interesting and valuable and give promise of large usefulness. The editorial department is not only ably filled, but all the notes, queries, items, etc., are readable and suggestive, and the work is made up and printed in an attractive manner.

The Home and Farm.

The American Apiculturist is edited by a former pupil of D. A. Jones of Beeton, Ont., an apiarist of considerable experience. The magazine is neatly gotten up and contains papers from the leading beekeepers of the United States. It occupies a place not filled by any of the existing serials.

Stratford Beacon.

New York City, Aug. 7, 1883.

DEAR SIR: I have received three numbers of the American Apiculturist; have read them carefully and are well pleased with all the articles, knowing that they are written by our most practical and most thoroughly posted apiarists in the country. Your journal is worthy of the highest commendation and I wish you success.

JOS. M. MCCAUL.

Metrose, Va., July 18, 1883.

DEAR SIR: The season is a fine one for bees. I have taken eighty lbs. of surplus white box honey, to date, from one colony and shall, if the season is favorable, get 120 lbs from some colonies (hybrid stocks). I prefer the Italians to any other bees, they have done well this year. What is the best remedy for keeping ants out of the sections of honey after they are removed from the hives?

R. W. HARRISON.

[Will some one please answer Mr. Harrison's question? ED.]

Sterling, Aug. 9, 1883.

DEAR SIR: I received sample copy of the American Apiculturist and was very well pleased with it. If you send out a journal like the sample copy, assisted by the correspondents you have, it is only a question of time that you have the largest circulation of any bee paper published. It was this that convinced me that, without such aid, no one can make a paper a success.

W. R. CROCKETT.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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PLAIN TALK ON BEE-CULTURE.

BY J. E. POND, JR.

V.

STIMULATIVE FEEDING.

CONTRIBUTORS to bee-journals usually make the endeavor to write seasonable articles, but the idea with them has been to make them altogether too seasonable; that is, an article on wintering would be written just as winter begins, and an article on dividing swarms, perhaps just after natural swarming had been finished. My own idea is, that an article upon a given subject should be written early enough to give the reader an opportunity to digest it thoroughly, and compare it with other articles of a kindred nature in order that he may form an intelligent opinion upon the subject for himself, and in case several methods are advised, to select the one that best suits his convenience and surroundings. To carry out my idea practically, I now propose to give my views on *stimulative feeding*.

It is now well understood by students of apiculture, that the queen ceases her egg-laying labor at the same time that her bees cease gathering honey. This is a beautiful and wise provision of a beneficent Providence in an economic point of view; when no stores are being gathered, no unnecessary waste should be allowed, else our bees might find themselves on the eve of winter with many mouths to feed and an empty larder from which to supply the food. We, knowing this important fact, are enabled to apply our reasoning powers in aid of the instinct of our bees, and by judicious use of them, obtain far greater profits for ourselves, than the bees would give us if left solely to the exercise of their own judgment in the matter. Stimulative feeding is found necessary for two purposes only; either to rear up a large force of foragers early in the season to take advantage of all the opportunities offered them for gathering stores, or to cause the hive on the approach of winter to be-

come filled with a large quantity of young bees, which all admit are the better able to withstand the severe cold of the northern sections of our country. The chief object is to know how this can be accomplished in the most economic manner. We certainly do not want to be obliged to feed a large number of bees at a time when they can gather no stores, for by that means we are making a positive loss; all we need is to so regulate matters that the force of foragers will be ready when the nectar is ready for them, and all we have more than is necessary to care for the hive prior to that time are a positive loss to us, by reason of the stores they will use for their sustenance.

Right here is where study and thought are essential; and this one point illustrates fairly the idea that no one can become a successful and accomplished apiarist without devoting time to the study as well as to the practical labor of apiculture. If one takes pains to learn the flora of his bee-range, the season of their secreting nectar, and the time when no honey is being gathered, he has taken one necessary step in the right direction. It is better to err on the side of prudence if errors are to be allowed, but we need scarcely err at all if we devote the time we ought to looking up the matter carefully. All know that it requires twenty-one days to rear the perfect bee from the egg, and experiments have pretty conclusively proved that the young bee does not ordinarily become a forager, till about the sixteenth day after it cuts its way out of its cell prison. This gives us a key to the situation, but if our colonies pass through the winter safely, and are found ordinarily strong in the spring, we shall find plenty of foragers among those that are left over, as soon as the young bees are able to do the house-work, which they can do when two or three days from the cell. Assuming the above statements to be correct, and experience teaches me that they are so, the deduction I make from them is, that we do not need to stimulate the queen to extra exertions, before about the middle of March, or the first at the earliest. If we do stimulate the queen to excessive laying much earlier than this, we may have a succession of cold days which cause the bees to leave the brood to perish, in order to cluster more compactly, which will bring about a loss to us and dishearten the colony. I need not give any particular dates for the proper times when stimulative feeding should be done, as each one must make it an individual question, depending upon his locality and the state of weather and temperature. Great care is required in the matter, for if judiciously performed it will aid in bringing about the best results, but if done in a slipshod, haphazard fashion it will cause positive injury as well as pecuniary loss. When settled warm weather at last approaches, and no further danger is apprehended of chilling uncov-

ered brood, the rule without exception is to feed whenever the bees stop gathering honey. For this purpose but little food is required, two or three ounces of largely diluted honey or sugar syrup being all that is necessary. It must be fed regularly however, and to avoid all danger from robbing should be fed at night and within the hive; and for the purpose I have found no feeder so suitable as Locke's new atmospheric. This feeder can be so regulated as to allow the food to be taken as slowly as is desired, and for stimulation alone, the slower the feeding is done the better. When the season closes and no more honey is expected from the fields, then the queen should be stimulated to her best work, just so long as she can be urged to lay an egg. By this means we shall fill the hive with young vigorous hardy bees, that can withstand extreme changes of heat and cold, and that will not spring dwindle if ordinary care is used in preparation for winter. I keep my queens laying up to the first or middle of November, using the extractor every few days if necessary to give the queens a sufficient number of empty cells. The young bees are the real life of the colony in spring. I have tried the experiment of uniting in early spring three or four weak colonies of old bees in the endeavor to make them strong enough to be of value, but have invariably found that these united colonies lived no longer as one, than they would had they been kept separate. For that reason I do not practise uniting weak colonies in the spring, but rather strive to build them up with brood from other colonies that are strong enough to bear the loss.

As this article is not written for experts, I do not expect they will be influenced by it, but if I have given one beginner any light upon this important subject, and caused him to reflect upon a matter to which he had given but little thought, my aim and mission are fully accomplished.

Foxboro, August, 1883.

BEE-CULTURE IN THE SOUTH.

BY G. W. DEMAREE.

IV.

THE season with us for white clover honey closed about the middle of July, and was the best for years past. Usually our white clover harvest commences about the fifteenth of May, and continues till the first of July. The present season my bees began to bring in honey from the white clover on the twenty-third of May and continued till the fifteenth of July. The red clover was remarkably luxurious this season, and notwithstanding this disadvantageous circumstance as against the workers, my Italians and thoroughbred bees might be seen all through the month of June working industriously at the big red clover blossoms the tubers of which were more than a half inch in length.

In my locality we have no linden timber to amount to anything—not over a dozen trees in reach of my apiary, but in its stead we have the locust, which gives a perfect shower of honey—enough at least to prepare the colonies for the surplus apartments as soon as the white clover begins to yield nectar. The greatest drawback, with which the apiarist in the south has to contend, is the comparatively long period which intervenes between the close of the white clover and the fall bloom of nectar-yielding plants, the principal of which are the golden rods, heart's ease—called "large smart weed" with us—the several varieties of asters, wild sunflowers, etc.

The only plants that yield nectar with us during the dry hot interval are catnip, figwort, giant hyssop, motherwort, milkwort, carrot berry—best known as "buckbush"—sweet clover or mellilot, and our second crop of red clover. The latter is visited only by the yellow race of bees, and the crosses between them and the native bees. No living man ever saw a pure native bee, black, brown, or gray, attempt to extract nectar from the deep tubers of the red clover blossom of this climate. How absurd it is then, to talk about crossing the "Brown germans" with Italians to get "red clover bees." These plants yield just enough honey to keep up excessive breeding and not enough to supply the daily wants of the hoards of young, hence the stores laid up during the white clover harvest gradually fade away, but are generally replenished by the fall nectar-yielding flora, if the weather is propitious, otherwise the bee-master must feed to supply that which is lacking. For the past seven or eight years I have had no expensive feeding to do except in cases of weak colonies and nuclei.

Having mentioned some of our resources for honey, the reader will naturally want to know what our bees have accomplished for us the present season. I am a little disinclined to "rush into print" to make a boast of just what I make out of my business, whether it be beekeeping or any other. I believe the "big reports" so freely trumpeted to the world, while the failures are kept in the background, have done a great deal of mischief to the occupation of beekeeping.

I have noticed the past honey season that most persons who have visited my apiary, and viewed the interior of the apiary store room, were at once smitten with bee enthusiasm and proposed to purchase bees from me right there and then. Did I take the advantage of their "enthused" state of mind to "turn an honest dollar" by selling them some bees at a big price? Not a bit of it. I would say to them, bee-culture is a "trade," a business that must be "learned." It would be throwing away money for you to "invest" in bees, simply because you have not "learned the trade." A man should be a "showman" before he invests his money in an elephant.

There is a colony of bees that belongs to my neighbor "B," who has had it apparently for the chickens to roost on and over for several years, and not a taste of honey has he ever got from it. Well, he sent it to my apiary the first of last March, to have the combs put in working order! "Working order?" Certainly! what are combs fit for if they cannot be handled? He was to have half of the surplus honey for his part. Well, I had to feed them. "Feed them?" Certainly; they were short of stores and bees must eat as well as other living creatures, straighten the combs, and give them an Italian queen in the place of the weak native queen. "Weak native queen?" Certainly, there is as much difference in the quality of the queens as there is in your farm animals. Well, he has already got about forty pounds of honey as his share. "Forty pounds?" Yes, there stands a colony right over there that is of the best imported stock; the bees were permitted to swarm just once. "Permitted?" Yes, certainly, what is the bee-master for, if his duty is not to control his bees? Well, that colony has given 172 pounds of honey and the swarm gave, say, 121 pounds. You see that colony and its increase gave 293 pounds of honey worth, at my apiary store, 15 cents per pound or $43.95, as the profit from one colony, valued at $10. Others have done nearly as well. In fact, every colony which I was able to control and wrest from the grasp of the swarm fiend, who visited my apiary with vengeance in his mien the present season, has paid at least 200 per cent on the capital invested, including labor. There stand my first six swarms, they came off in good time to take the advantage of the honey harvest. Well, they have given 600 pounds of surplus honey, or an average of 100 pounds each — worth $90.00 — the proceeds from six swarms. Others that came off later have given 50 pounds and some less. Did the whole apiary do that well? No. Quite a number of colonies became so demented with the "swarming fever," that it was impossible to control them till they were completely exhausted and in this way they frittered away the best of the season and hence gave only 20 or 30 pounds of honey to the colony.

You see it depends on the watchfulness and skill of the apiarist as to whether he gets good or poor results from his bees. I can generally control swarming to a good extent. Of course there are exceptional cases. The present season has brought results differing from anything in the swarming line that has ever come under my observation. All the remedies have failed this season. If I cut out the queen cells the bees would set all general and established rule at defiance and swarm anyway, leaving the bee-master to supply the old colony with brood from other hives together with a queen. Or, if you moved the parent colony to a new stand to draw off the

mature bees you only changed the battle field to the hive which caught and was strengthened by the bees drawn from the parent hive. The season was not without its valuable "lessons." I would succeed much better another time. When I used to keep bees to gratify a love for the study of their habits and natural history, I would advise any and everybody to "keep bees." I have learned better now. It is "murder"—of course I mean bee murder—and murder to the bee business too to advise men who are utterly unfit for the bee business to undertake it. To those, however, who have the talent for the apiary, and are in every way adapted to the pursuit, I would point out to them bee-culture as a safe, agreeable, healthful, and profitable employment in the South. It is true that there are many locations in Kentucky, generally on the large water courses, and in the mountainous districts that are so exceptionally good that bees will succeed in spite of ignorance and barbarisms. In some of these highly favored locations there are men who support large families by keeping bees in log "gums" and boxes, following the barbarous practice of gouging the honey from the tops of the gums and boxes and murdering the bees with the fumes of sulphur, and in this way put upon the markets barrels of smashed, and strained honey. The latter is sold at about a dollar per gallon. Such a location—and there are many of them—would insure to any young man of talent and pluck all the independence that this world's goods can give.

Christiansburg, Ky.

ITEMS OF RECENT EXPERIENCE.

By E. E. Hasty.

Some of my recent moves are in the nature of "going back into Egypt." In a few belated colonies this summer, for the purpose of getting some honey, where if I did'nt look sharp I would get nothing but fall honey, I resorted to cutting out new comb from the frames of the brood chamber. I do not think anything was lost by the proceeding, and I feel inclined to experiment further in the same direction. This taking wax and honey both, would be wasteful if there were any truth in the statement that it takes twenty pounds of the latter to make one of the former; but I haven't a particle of faith in that assertion. In default of anything I consider reliable I venture a Yankee guess that a pound of wax is the equivalent of about three pounds of honey.

UNBROKEN CAKES OF WAX.

It isn't nice to have a pan of wax divide through the middle with two or three great seams, and stick tight to the sides of the pan. Fold a cloth in three or four thicknesses, and lay it over the pan. This compels it to cool from the sides instead of from the top; and the

cakes will drop out of the pan without a crack in them anywhere. It takes a large cake a surprisingly long time to get solid in the centre; so look out about meddling with it too soon. But alack! some buyers will be likely to tell you your wax is adulterated, if there are no big cracks in the cakes.

FAILURE OF BUCKWHEAT.

In this locality buckwheat usually yields honey, but this year its mahogany-colored nectar is almost lacking. Some of the time there is so little of it that a person could walk through the middle street of the apiary without smelling even a snuff of its rank and peculiar odor. By the way, I have an idea that the all-out-doors smell comes from the bees rather than from the honey; just as the person who uses tobacco emits a smell much worse than the tobacco itself.

EXCESSIVE SWARMING.

From this I have suffered great worriment in time past. This year also is not an exception, in fact when things were hottest I thought it worse than ever; but casting up the figures shows an improvement — considering the number of colonies. Four or five good colonies, and several more laggard ones, out of the 117 I started in with, attended to honey storing without casting swarms. Only four swarms came out in August, while last year there were thirty-one and one in September. Only one repeater this year against twenty-two last. By a repeater I mean a prime swarm *of a second series* led by a fertile queen — a queen going to her third location for the year, or a queen of the current year leading a swarm from the old stand after becoming fertile. Last year I had 167 swarms from 68 colonies, and this year 192 swarms from 117 colonies. These figures count no swarm but once, and do not count swarms that went back of their own accord, as some did many times over.

PREFERRING CREVICES TO SECTIONS.

August 23 I found a colony that had plenty of room in the sections directly over the brood, storing honey (and they had several pounds of it) in a crevice behind a division board in the upper story, not over the space occupied by bees below.

CLOSING OUT COLONIES WITH FERTILE WORKERS.

Many things advisable in a small apiary can be dispensed with in a large one — rather than hire help and eat up all the profits by so doing. I do not try any more to examine every colony three weeks after swarming, to see if they have a laying queen. A few will fail, but, as I get more swarms than I know what to do with any way, I philosophically take the bankrupt act to them. Only four colonies failed this year, a much less number than usual. Some time along in the middle of August, or earlier if swarming has closed early, choose a day when honey is coming in briskly, and look sharply at the entrance of each hive. Hives with

queens may have few bees in the doorway, or many, but a goodly number will be alighting and crawling directly in, in a business-like way. Queenless colonies may have many bees at the doorway, and some dancing on the wing in front of it, but when you look closely you see that those not flying are only walking up and down, and almost none are entering, as bees do when they have a load. In this way the ruined colonies can be picked out without the labor of pulling off all the sections in the apiary. Examine at once, and remove the sections so future examinations can be made with ease. If they are still strong enough to defend their hive, and moth worms are not yet doing serious mischief, let them alone a while longer. Although they do not work with energy they gain some in honey, on account of having no brood to feed except a few dozen young drones; and they may pan you out twenty pounds of extracted honey at the close. In the end, I simply take the combs away shaking the bees back into the hive. If they have any "snatch" left about them they can build a little comb in a corner and put some honey in it; but probably they will not do so. In a few days, what with homesickness and what with rather short commons, they will have finished up with this weary world. Any individual bees that have enterprise are at liberty to find homes for themselves elsewhere. A feeble remnant with a good queen will swarm out if deprived of their combs, and may make trouble in the camp, but a queenless colony will not. One of my four this year had no drone brood and no fertile workers — an unusual state of things with me.

THEY WOULDN'T GO IN.

Having so many swarms I get lots of experience in hiving, and incline to be proud of my expertness. The last swarm of the year took me down a peg. They totally refused to go into the hive when put down before it. The cause was just this. A comb, partly empty and partly containing honey, had been put in, and for a few days previous it had hung in a box with other combs. Two or three of these had a few dozen drone larvæ in them; and so the otherwise faultless comb I tried to use had contracted a slight odor of putridity from the air in which it hung. After the obnoxious comb was taken out the bees slowly consented to enter. Moral: Mind your Q's and P's when you hive a swarm of bees.

Richards, Ohio, Sept. 5, 1883.

CONSISTENCY, THOU ART A JEWEL!

By Geo. W. House.

In the editorials of the "Bee Keeper's Magazine" and the "American Bee Journal" are remarks that call for rebuttal or an explanation from some one, and as heretofore these same journals have

placed me as the leader or champion of those "few boisterous fellows" with "stupid and senseless prattling," as the "Magazine" has seen fit to call us and also the "coöperatives" as the A. B. J. has styled us, I take it for granted that I have the right to defend their or "our" *cause*.

The "Magazine" says:

"No respectable journal of the size and character of the "Exchange" can possibly sustain itself on a less circulation than from four to five thousand, unless some other business, more profitable in itself, is associated with it. We speak this advisedly, having had several years' experience both in publishing and manufacturing. Hence we treat as the "idle wind" the stupid and senseless prattling of the few boisterous fellows who would fain make the beekeepers believe that the publishers of their papers should not sell them their supplies. We are glad to unite with ours a paper which has always looked upon this question in the same light as ourselves."

It is difficult for any honest reader to tell in exactly what position Mr. King stands. There is too much *policy* and *self* in that paragraph to be palatable. It is that old game of "*Good Lord*" and "*Good Devil.*"

We have always been told that one of our *largest* supply manufacturers was connected with the late "Exchange" and as Mr. King admits that the "Exchange" in *size* and *character* was respectable, his argument in that respect falls to the ground.

In the paragraph preceding the one quoted, Mr. King undoubtedly gives the true reason for the sale of the "Exchange," but when he goes beyond that, then we think he forsakes his dignity as an editor and stoops to the use of uncalled-for and unkind and abusive language. If he has an *argument* against the belief and opinions of those *few*, let his argument be on that issue alone.

The editor of the A. B. J. says, on page 414, the "Exchange" was selected to receive the support of the "coöperatives," and infers that that move was the cause of its death.

I am not aware that the "Exchange" received the support of the "coöperatives" any more than any other publication. Further on Mr. Newman says, "We learn that the coöperatives are casting around to make another selection for their organ, but it will be wisdom for the papers so approached to *beware* and profit by the fate of those who have preceded them as organs of discontent."

It is a cowardly and dastardly act thus knowingly to misrepresent the dead journal and its contributors.

I challenge any man to produce any volume of any bee journal that contains *more discontent* or *personal abuse* than has the American Bee Journal in the past. They are nowhere to be found. Does Mr. Newman think that his readers are so ignorant and senseless that they cannot comprehend his motives? I doubt his competency in successfully bulldozing the editors of other papers. How different are

the motives of the two editors (of the "Bee Journal" and "Magazine")! Compare the above quotation from A. B. J. and then read the opinion of the "Magazine." Mr. King says, "We always admired the 'Exchange' as an honorable and manly rival; never stooping to the low tricks of a third-class journalism, but square and outspoken on all subjects of difference among its contributors."

O "Consistency, thou ART a jewel!" Where is the jewel, eh? Who is it that is trying "to set the beekeepers of the east and west at variance?" Echo answers "who." Can any one successfully show wherein the writer hereof has done *other* than aid in the advancement of apiculture anywhere and everywhere?

Why does the editor of A. B. J. persist in his malign against cooperation? *Consistency, thou art a jewel!*

If our editors disagree with the opinions of any of us, it behooves them to show wherein we err. If our acts are detrimental to the interests of American apiculture, it would look much better in the eyes of the public if those editors would use strong and convincing, but *honest* arguments in their endeavors to set the matter right. We should not wrangle over things that are dead and passed away; but we should use forcible and convincing arguments with untiring energy against existing corruptions. Our watchwords should be *onward* and *advancement*, always working for the interests and welfare of the beekeeping fraternity.

We are advancing when we show the producers when and where they can save money, not alone in buying supplies, but in marketing their products to best advantage. It is *not* advancement when we throw dollars into the pockets of our editors and manufacturers for the purpose of increasing the cost of producing our products. Ask the beekeepers of New York what coöperation has done for them in the past, in the matter of glass alone! How will the beekeepers of America be able to place their honey in Europe to advantage? By coöperation and that alone. I am willing to let this rest. The *near future* will decide whether coöperation is right or wrong.

Fayetteville, N. Y., Sept., 1883.

EDITORIAL.

WHILE this number of the Journal is going through the press, we shall probably be on our way to attend the North American Beekeepers' Association at Toronto, Ontario. It was our good fortune to have attended the first two sessions of the Ontario Beekeepers' Convention, and witness the beekeepers' exhibit at the fair grounds; this, together with the fact that the North American Association convenes this year in conjunction with the Ontario, and that many of the most prominent apiarists in the United States are expected to be present, assures us that we shall feast on good things while there.

We look forward to this meeting with great interest. There are many questions of vital importance which will be brought before the convention for discussion and to be decided upon, and we expect to return to our work with renewed energy and to bring with us a casket of jewels for our readers.

The question of how a beekeepers' association should be organized to work to the greatest advantage for the interests of the masses who are engaged in bee-culture, calls for a vast deal of careful consideration. We do not consider that this question has been properly decided yet, and look forward with eager anticipation to the time when associations shall be so organized and conducted as to prove beneficial to the advanced bee master as well as to the novice and supply dealer. Beekeepers' associations must be productive of substantial advantage to all of their members in order to prove a success, and it cannot be said that they have attained to this when a large number of thoughtful and prominent bee masters state that they do not receive enough of advantageous information at these meetings to warrant the expense incurred in attending them. This need not be. These parties do not make these statements without reason, and some means must be adopted to obviate the difficulty.

We need concentrated action. Take the question of standard hives and frames. For some time past our journals have been filled with articles from prominent parties upon these questions and still they are undecided; when a national association composed of a proper number of delegates from each state association (and each state should have one) could have decided the question at one session. This question is only one of a number which must be decided sooner or later. Large numbers are adopting beekeeping as a vocation, and their selection of a hive with which to start depends largely upon the one adopted as the best by the nearest supply dealer. The consequence is that we are always changing and adding to the running expenses of the apiary. The associations and journals are, or should be, to a large extent at least, the leading educators of the masses, and when we can learn to work in unison wholly for the interests of the entire fraternity, we shall have accomplished a grand work, and have solved (to beekeepers) one of the most important problems of the day.

We have not the space to dwell longer on this question, and will leave the matter here for your consideration. We shall be pleased to hear the opinions of our readers upon these and kindred topics. Remember that, in order to make the journal interesting and profitable, each one must cheerfully contribute his share to the work and not leave it all for the poor editor to do.

In regard to the Apiculturist, we take great pleasure in saying that as each month passes, we become more and more convinced

that we are on the right track and that ultimate success awaits our efforts. We are under great obligations to our beekeeping friends who have so cheerfully and heartily extended to us the hand of fellowship and who have aided in so large a measure to make the journal interesting and instructive.

Since we first started the "Api" we have heard from a large number of our most prominent apiarists and not only have they endorsed it without one dissenting voice, but they have given to its readers some of the most valuable articles ever published.

We have endeavored to carry out our original designs, and give to the beekeepers of America a journal which should be published in the broadest sense in their interest. Five numbers of the journal are before you, and you may decide for yourselves whether such a journal is needed. You can certainly obtain more valuable information from its pages in one number than the subscription will cost you. Now, why not take hold with us, and by contributing your mite, not only in the way of subscribing for the journal and trying to obtain subscribers, but also in sending to us whatever of valuable information you may chance to glean from your every-day labor and experiments in the apiary. In order that you may be encouraged in so doing, we have decided to offer inducements (see club list) which are so liberal, that we feel sure you will accept them and take hold of the work in earnest. We are aware that a journal which has not a supply trade on which to rely for support must depend upon its subscription list; hence we feel our dependence upon the support of the beekeepers. Our main object is to benefit our brother beekeepers, and in order to carry out our plans properly and fully, we need your help. Do not be afraid to ask questions. We have provided a question and answer department through which any questions you may like to ask will be cheerfully answered by prominent apiarists.

Now, after the busy season is over, let us hear from all our beekeeping friends. We shall be pleased to receive any suggestions that may tend to improve the character and worth of the Apiculturist. Send in your subscriptions and give the journal a trial for one year and we feel assured that you will be desirous to continue your subscription.

BEE NOTES.

Already New England and probably many portions of our northern sections have been visited by the first fall frost, and with other vegetation, the honey flora has been clasped within its icy embrace. This will, in many cases, necessitate fall feeding, both to keep up breeding and for winter stores. Many beekeepers have surplus combs filled with honey, kept for this purpose, but the large number will probably resort to the feeder and

sugar syrup. Friend Root in "Quinby's New Beekeeping" and H. Alley in his "Handy Book" give exhaustive directions for feeding. We prefer for this purpose the glass-jar feeder, described in the latter, as it is simple and inexpensive.

In our August No. we treated the subject of wintering pretty thoroughly, and need only to allude to it here, unless it be to state that, with the exception perhaps of the spring months, the fall is the most vexatious and trying time in which to handle bees. After the honey season closes and the days and nights become cool, the bees seem to make it their special business to be cross and irritable, often disposed to pry around their neighbors' homes and the honey room in quest of sweets.

In going about the apiary at work, be careful and gentle in all your movements; do not jar the bees or handle them roughly; take time to do your work carefully. You will find that the honey boards or cloth coverings are well glued down now. Do not remove them with a jerk, but slowly and gently, puffing smoke among the bees to keep them down when you are doing this. If, through carelessness, you allow a large number of bees to escape from the hive without being filled with honey, you will regret it, and they will bother you as long as you have the hive open.

Again, as the queens cease laying they become smaller and hence more active, and as the bees are looking about for robbers now, the queen sometimes becomes frightened and starts to run, while the bees mistaking her for a robber pounce upon her and either sting or ball her. This is, in many cases, the direct cause of the loss of queens in introducing.

We never have had any trouble in introducing queens. We always remove the old queen (provided the colony has one) and then brush the bees from one of the combs, taking the comb into the bee room near the window to avoid the loss of the queen, and caging the new queen in the side of the comb in a wire cage $3 \times 4 \times \frac{7}{8}$ inches. Cut a hole through the comb, leaving the plug hanging loosely in the hole, so that the bees can see the queen through it.

We have never lost a laying queen when introducing in this way. In fact, we experimented once with some virgin queens and have taken out an old queen introducing a virgin queen over two days old in this way immediately after with success. We would not advise others to adopt this plan with virgin queens, but it would be well to try it with one or two as an experiment.

We consider that the best time to introduce a queen is when the old one is removed, as the bees soon discover their loss, and in looking about for their old queen discover the new one in the cage and immediately begin to feed and care for her. While they are doing so, she becomes acquainted with them; and when the first bee

works its way through the hole and meets her, the queen, instead of fighting, accepts the proffered attention and they become friends.

When other bees enter, they find No. 1 on friendly terms with her majesty, and shortly the queen finds the outlet to the cage and passes through to commence her duties as mother bee.

Now, perhaps we have taken considerable space to explain our views regarding the introduction of queens, but we hope it may prove useful to our readers.

It is a good time now to collect all the pieces of waste comb and render the wax; clear up surplus combs and put them away where they may be kept safe until the next season. Do not delay chaff packing until too late as the bees may stop breeding too early, and it is not best to disturb the bees too late in the fall.

CORRESPONDENCE.

Editor of American Apiculturist:

Dear Sir,

To those who want to gain a triumph and an imported queen of any race, we make the following offers:

FIRST OFFER.

The undersigned will send a choice imported Carniolan queen or a choice imported Italian queen to Mr. I. R. Good, Mr. Paul Viallon, or "any other man"—yes, the lady bee-friends are also included,—who will send from America to the address given below, by mail, post-paid, three boxes containing live bees of any race whatever and with or without queens, provided the contents of two out of the three boxes sent may be said to have arrived in *fair order*. The only limitations will be as follows:

Each party shall have but one trial; the mailing cages may be of any pattern except that employed by me, and the food of any sort except that I am now employing. (So far as I am aware neither the cage nor the food used by me is employed by any one else, either at home or abroad.) When ten persons have successfully met these requirements I shall cry, "quit."

The queens which I propose to send in return may be had this fall or early in the spring, will be choice ones imported from the apiaries of noted breeders of the race desired, will be sent prepaid as far as New York City at least, and, in case the first one sent out to any successful competitor fails to reach him in fair order a second one (prepaid to N. Y. at least,) will be forwarded. I am to have the right to make a report for publication regarding all lots received. Should any party not wish his name to appear in connection with the matter (until he meets with success! eh?) he may put initials, figures, or signs of any sort, on his boxes instead of his name, but must then write, *at the time he sends the bees*, to the editor of some bee-journal giving the marks of his box and his full address.

SECOND OFFER.

To any one who sends me from America by mail, post-paid, five cages of live bees three of which shall arrive in *good order*, I will send a choice queen imported from Cyprus, from Palestine or from Syria. When five persons have succeeded under this offer I shall want the rest to content themselves with merely "an honorable mention." All other conditions the same as preceding offer.

HINTS TO COMPETITORS.

Cyprian and Syrian bees will stand a longer journey and better than any others. I think bees *with* queens will be more likely to arrive, in good order than those *without* queens. Mere death of a queen need not necessarily cause the objection of a box, more will depend on the condition of the workers and the box. Such packets are here classed as "samples" by the postal authorities, and will be rejected by the latter if over 8 in. long, 4 in. wide, and 2 in. high.

From New York "*via* Bremen" or "*via* Havre" are the only advisable routes for unregistered cages of bees; "*via* Hamburg" usually takes longer. Letters mailed east of the Mississippi reach us in 12 to 20 days, *usually* about 14 to 16 days. I think some of the fast mail steamers to England would bring the time down to 10 or 12 days from N. Y. to Munich, but if sent by any mail to England the cages should be registered in order that English post-office officials may not have the grim satisfaction of notifying me that a packet addressed to me had been detained in London and would be delivered to me in person at that office within two weeks, which interesting trick they once played on parties in America to whom I had addressed packages of bees; also, these same officious gentlemen are to be kept, through the registering of the packets, from arresting and returning the latter, after five or six weeks, as they once did over forty fine Syrian queens I had mailed in Beyrout, Syria. *Registered* packets *cannot* be stopped in England and no addition dare be made to the postage. Since I learned this quirk I have sent all queens to England by mail without difficulty, and without losses. Another point would be to ascertain the exact time of sailing of the mail steamer from New York and to mail queens just in time to be sure and catch it. I have no earthly use for the queens I may get in this manner, so I can pay nothing for them, and I would advise all who try, to pick out the blackest, runtiest, crossest hybrids with as many lives as a Thomas cat is said to have. Unfortunately, old queens do not stand journeying well, else they would be just the "critters" to use for such experiments. (No disrespect toward these estimable dames.)

Now let's see how *good* the Good candy is, or if there is any *gooder* candy "wasting its sweetness," etc.

Yours, "with a beekeeper's friendly greeting," as the German bee-masters say to each other,

FRANK BENTON.

Munich, Germany, Aug. 9, 1883.

Editor of American Apiculturist:

Dear Sir,

THE undersigned have formed a copartnership under the firm name of McCaul & Hildreth and will carry on a general honey, beeswax, maple sugar and maple syrup business. There is no doubt the need exists of a strictly distinctive business of this kind, where products can always be obtained and consignments made by producers to best advantage. My long experience as manager of this department for Messrs. H. K. & F. B. Thurber & Co., and familiarity with the honey trade, and connections with all the principal beekeepers throughout the country, enable me to establish understandingly a honey emporium where all the bee products can be handled to advantage. I desire to thank my friends for their confidence and patronage in the past, and advise them of the

excellent advantages we now offer in establishing a business where goods in this special line will receive undivided care and attention. Any goods intrusted to our care on commission will be disposed of at the highest market price and prompt returns made. Soliciting your patronage, we are,

Very respectfully,

McCaul and Hildreth.

EXCHANGES.

Detecting Glucose Adulterations.— We have received from the Rev. L. L. Langstroth, the following letter concerning the recent discovery of the new phase of the glucose abomination:

Oxford, O., July 20, 1883.

Friend Newman:— I enclose you what I hope will prove a good way of detecting glucose adulterations. I have the promise of some glucosed maple sugar bought in the open market, which will be soon tested. We propose to move all along upon the enemies' lines. I am aware that these exposures must, for a time, to a certain extent, injure the honey trade; but they are necessary, and in the end will help it. If beekeepers kept silence, where would these frauds stop? The good old American Bee Journal has done much honest work in this matter. How long will it take to excite a State or the whole country if a President, or even a Senator or Governor is to be elected, so that vast sums can be raised for election expenses, and yet the people rest almost passive upon the immense frauds of adulterators, who are often destroying health and even life! It is hard to move us in this matter, but the steam of a righteous indignation is making, and its power will be felt.

Please correct the only important error of the press in my last communication. I said, "for we do *not* believe that this company is a sinner above all others," etc., and the types made me say, "we do believe," etc. Mr. McCord and myself do not wish to make personal attacks upon any one, or to single out any one concern. If any of the many glucose manufactories feel aggrieved by our exposure, it cannot be helped. Again, I challenge them, or any of their advocates, to name for what *legitimate* purposes the immense quantities of glucose products are used. I ask them if they dare to say to what uses they are actually put. We wish "the truth, the whole truth, and nothing but the truth."

L. L. Langstroth.

The letter referred to by Mr. Langstroth, with the method of testing honey, syrups, etc., by Prof. B. F. Marsh, of the Miami University Training School, is as follows:

Oxford, O., July 18, 1883.

Dear Sir:— In answer to your request that I should indicate some easy method by means of which impurities in glucose, syrups, etc., could be detected, I submit the following:

The impurities most common in manufactured glucose are calcic sulphate, known as sulphate of lime, and sulphuric acid. Calcic sulphate is insoluble in alcohol. If, therefore, a drop of glucose containing any of the above salt be thoroughly mixed by shaking in a glass vessel with four or five tablespoonfuls of strong alcohol, a white precipitate of calcic sulphate will appear and make the

solution milky. The above test is generally all that is necessary to detect the presence of the sulphate of lime. It may be necessary, sometimes, to add a drop or two of sulphuric acid to the solution before the precipitate will appear.

For the detection of sulphuric acid, a drop or two of the suspected glucose is to be placed in a glass vessel and dissolved in two or three tablespoonfuls of water. Add a few drops of chloride of barium to the solution, when if sulphuric acid is present in considerable quantity, a white precipitate will appear and make the solution milky. This test will generally be all that is necessary to indicate the presence of sulphuric acid in glucose. When the acid is present only in minute quantities, it will be necessary to add to the solution of glucose and water, a drop or two of dilute chlorhydric or muriatic acid before adding the chloride of barium. In making the tests, rain water should be used. It is hardly necessary for me to add that pure honey contains no lime or sulphuric acid. There is, however, in all pure honey, a slight trace of formic acid which is secreted by the bee; but this acid will not interfere with the tests which are indicated above.

With great respect, I am,

Yours truly, B. F. MARSH.

Rev. L. L. LANGSTROTH, Oxford, O.

It will be remembered that the glucose manufacturers wrote to Mr. McCord that "they feed it [glucose] very largely in California, and make money out of it." Mr. Wm. Muth-Rasmussen has sent us the following very emphatic denial of the accusation:

MR. EDITOR:—I have just read Mr. Langstroth's article with your comments on page 341, AMERICAN BEE JOURNAL.

Allow me to say, that during my 14 years' experience in the bee business in California, I have never seen glucose, nor have I among my large number of beekeeping acquaintances found any who ever had. I know of beekeepers, who in seasons of drought bought honey in San Francisco to feed bees to save them from starvation. They paid 7 cents *and* freight for honey which they had sold the previous year for 5 cents. Others bought grapes at the vineyards and hauled load after load to the mountain apiaries to save the bees. I never heard of grape sugar being used for that purpose, though it is not impossible. But the assertion, that "they feed it (glucose) very largely in California, and make money out of it," I shall not hesitate to pronounce in the meaning it is intended to convey, as *an unmitigated lie*.

I doubt that glucose or grape sugar either can be found in this State outside of San Francisco. I believe it is used there by packing firms, as it is but a short time since I saw in one of the stores here a small can of honey which had been there for 6 years, and was still liquid. The "honey" was rather dark, of inferior flavor, and thinner than good honey ought to be, still it was labelled "Orange Blossom Honey," "Warranted Pure." Two barefaced lies on each can. Every one familiar with southern California knows that bees never get orange tree blossom honey to amount to anything. The orchards are too far from the apiaries, and the orange tree blooms in the winter and early spring, when bees never fly far in search of food.

The price of honey in California is governed by the price in the eastern states, deducting freight, commission and other incidental expenses. Any one can, therefore, by looking at the quotations in the

bee papers see that a man is not liable to grow rich by the bee business here. You cannot, Mr. Editor, more than I regret that another drawback should be added to the often precarious living of the California beekeeper, by the false assertions of this "Grape Sugar Co."

I enclose a clipping from the *Pacific Rural Press*, March 24, 1883, by which you will see that a new sweetening compound has been invented, and is going to be used to *adulterate glucose* with. Can you, or any of our scientific beekeepers, tell us anything further about this "benzoic sulphide?"

Wm. Muth-Rasmussen.

Independence, Cal., July 19, 1883.

The following is the new compound for *adulterating glucose*, mentioned by Mr Muth-Rasmussen:

A New Sweet Compound.—C. Fahlberg, in a paper read before the Franklin Institute, Jan. 17, furnishes some interesting particulars in relation to his discovery of a certain sweet compound in the hydrocarbon of the coal tar group. He describes the sweetness as being very intense. As soon as he made the discovery, he proceeded at once to determine whether it was poisonous to take it in larger quantities or not. At first a cat and then a dog were subjected to experiment, but they remaining alive and apparently not in the slightest degree affected by it, the discoverer decided to take several grammes of it himself. The result was not the slightest inconvenience experienced from it. A chemical test of the urine, made the next morning, showed that almost the entire quantity taken could be thus recovered.

The compound obtained, and which contained the sweet principle, forms salts with any carbonate of the alkalies, alkaline, earths or metals and all of which taste sweet. It is, however, not an acid, but belongs to a class of bodies to which the name "Sulphines" has been given; the compound in question being benzoic sulphide. It is very readily soluble in alcohol, more so than in cold water, in which it only dissolves readily when it is hot. The discoverer says: "I am making the attempt now to prepare it in larger quantities, and by cheaper methods, and have no doubt that it will find extensive use in medicine and for technical purposes. One experiment made was to sweeten glucose, which, as you all know, tastes only faintly sweet, and the result was a complete success. As soon as I shall have found the method by which to prepare it on a manufacturing scale, I shall come before you again, and as I trust and hope, with larger samples than now, ready to give answer to all questions in regard to its price, application, etc."

This "benzoic sulphide" is new to us, and, if its career is to be anything like its twin-fraud — glucose — it were better if it should be consigned to eternal oblivion. *Am. Bee Journal.*

[We take great pleasure in welcoming to our pages such valuable information regarding the use of glucose in the adulteration of honey. It seems as though one of the leading questions of the day was how to perpetrate the greatest amount of fraud without being detected. Almost every article of food is adulterated, and now that honey has become a staple article of commerce, adulterators are concocting every possible plan to adulterate it, making it necessary that all beekeepers, beekeepers'

associations and bee periodicals should use every means to detect and expose them. We are with you and will willingly publish any authentic facts regarding this matter.— Ed.]

BOOK NOTICES AND REVIEWS.

Mr. Henry Alley of Wenham, Mass., author of "The Bee Keeper's Handy Book," has kindly presented me with a copy, which I have carefully read, and now propose to give in brief my views of it.

His book, while it treats generally on the subject of beekeeping, is more particularly devoted to a plain and concise description of the author's new and original method of rearing queens. It is printed in clear type, on fine paper, and so handsomely bound as to be an ornament to any library. The author makes no pretensions to literary style, but writes in a forcible, vigorous manner, and in language that all can easily comprehend and understand. As is usual, from description, some of the operations used by Mr. A. in working his system, might seem difficult and laborious; but when they are put into practice, they will be found simple and easy. The great trouble in queen-rearing heretofore has been in getting queens reared from the egg, and the cells built in such shape, that all could be saved. Any one who has attempted cell building well knows that larvæ three or four days old are often used; that cells are built indiscriminately throughout the hive, and many of them so close together, that quite a loss ensues in transplanting them. The beauty of Mr. A's new system consists in forcing the bees to build cells just where it is desired to have them placed; so regularly spaced apart that none need be lost in transplanting, and what is best of all, the egg must in every instance be used. I have gone through with the method as described in the book, and find there is no chance of failure, if the directions are closely followed, and the work is far less than by any other method I have used. If the book contained nothing but a description of the queen-rearing system, it would be cheap at the price, and of great value to apiarists generally; but containing, as it does, not only many valuable hints from the author in regard to bee culture, the result of more than twenty years' experience; an able essay by one of our most eminent apiarists, Mr. House, on comb honey; and a description by Mr. S. M. Locke, editor of the Apiculturist, of the new races of bees, than whom no one is better qualified to give it, render it doubly valuable, and a grand addition to apicultural literature. In fact, no one who is engaged in beekeeping, on no matter how small a scale, can afford to be without it; and no apicultural library can be said to be complete that does not contain it. Beekeepers as a rule are wedded to their idols, and it is difficult to induce them to travel out of their own beaten paths. I find some points stated in the book on which the author and myself might differ; they are more in matters of manipulation, than of practical management, and probably I should like his methods as well as my own, when accustomed to them. Taken as a whole the work is very meritorious, and any one who intends to keep up with the times must purchase and read it and follow its teachings. — J. E. Pond, jr.

Foxboro, Mass., Aug. 9, 1883.

NOTES AND QUERIES.

We have just received from Dr. A. B. Mason of Wagon Works, Ohio, a neat pamphlet of about 70 pages, containing the premium list and rules and regulations of the Tri-State Fair (Ohio, Michigan and Indiana) held at Toledo, Ohio, September 10, 11, 12, 13, 14 and 15, 1883. The premiums on supplies for the apiary, bees, honey, etc., are numerous and liberal and cannot fail to benefit bee culture in those states. It will be for the advantage of every agricultural society to encourage beekeeping by extending to it a helping hand.

Any person having a complete set of either the American Bee Journal or Gleanings and wishing to dispose of it will please to communicate with us.

Mr. E. Tarr of Castle Hill, Maine, informs us that, last season, he shipped $50.00 worth of honey to the firm of F. W. Harris & Co., of Boston, Mass., and that said firm cheated him out of his honey. We have inquired into the matter and can find no such firm. Reliable Boston parties think that perhaps it may be a bogus firm. We would advise beekeepers to place their honey in the hands of those known to be reliable.

We would call the attention of our readers to the letter under "Correspondence" from Messrs. McCaul and Hildreth. Mr. McCaul's experience while with Messrs. Thurber & Co. should fit him for the work before him, and we trust that our readers will find in this new firm just the headquarters for their honey that they need; and, just so long as they do an honest, square business and prove to be the beekeepers' friend, they will not fail for want of patronage.

Who will secure the first prize on the club list? (See p. 93 of this journal.) The person who sends us the largest list of subscribers before the first of May will secure two first-class colonies of bees, which is a prize worth working for. Please notice our club list and go to work. Sample copies sent free to those who wish to work for us.

The Cass County, Ind., Beekeepers' Association, organized on the 15th of August, will meet on the 10th of October, 1883, in Logansport, Ind. All persons interested in bees and honey are respectfully invited to attend.

De Witt Brown, Sec.

The quarterly meeting of the Marshall County, Ia., Beekeepers' Association will be held at the Court House, in Marshalltown, Iowa, on Saturday, October 6, at 10.30 A. M. Subject for discussion, "Fall and winter care." All interested, in this and adjoining counties, are invited, for we hope to have a good meeting, and one of benefit to all.

J. W. Sanders, Sec.
Le Grand, Iowa.

We have been notified that the name Crocker & Blake, under which Messrs. E. E. Blake and F. L. Ripley have transacted business for the past ten years, has been changed to that of Blake and Ripley which is now the honey firm of Boston.

There is now no excuse for sending postage stamps or coin in letters for small sums, excepting at offices where they do not issue postal notes or money orders, as the new postal notes are now obtainable. There are 6,500 money order offices and each of these is supplied with books containing 800

postal notes, each. The fee for each note is three cents, payable at the office where it is issued. The person sending the note must select the office at which he wishes it made payable. Each note is made payable to the bearer and it is safer than it is to send postage stamps or bank bills in letters. Large amounts *should always* be sent by money orders.

QUESTIONS AND ANSWERS.

BY THE EDITOR.

1. How does beekeeping, with you, compare with other pursuits as a vocation, upon which one may depend for a living?

2. What advice would you give to the novice who wishes to engage in beekeeping?

3. When purchasing his first bees for a start, would you advise his purchasing them in box hives and transferring them, in movable hives, or in nuclei?

4. What kind of hive do you prefer and why?

5. What style and shape of hive do you prefer and why?

ANSWERS BY J. HASBROUCK.

1. In this region, I think, beekeeping has never been tried as a "vocation upon which one may depend for a living," for the reason I suppose that people think it would not compare favorably with other pursuits. This is a rich farming country, the heart of the "Garden State," and the land is kept closely occupied with crops of grain, peaches, or truck. Fence corners and railroad banks are kept carefully clean and there is but little waste land anywhere. There is but little pasturing done, so there is not much chance for white clover, and the land is considered too good to raise buckwheat. The location is about as unpromising for honey as could be found, and the only way I could imagine that a living could be made with bees, would be in the establishment of numerous apiaries, within easy reach of each other by the cars. 1000 colonies thus located I should judge would give about the same returns as the same amount of capital invested in a grain farm, and about half as much as from a fruit or truck farm, requiring about the same outlay. The old "box-hives" gave up the business long ago, as being altogether unprofitable. I keep bees largely for diversion, and if the labor and time I spend on them were taken into the account, they would not pay.

I have six sources of honey; fruit blossoms, the last of April, from which I generally get enough to make the bees breed lively; clover the last of May, and till the last week in June, but this is the only year in the last five, when clover has not been a failure; basswood the last of June. I have 200 basswood trees within two miles of me, but they are all on the same level, skirting the streams. They all bloom at once and but for four or five days, and for the last five years, it has either been "off year" with them, or a severe drought or a heavy storm has spoiled the bloom, so I have never got any surplus from them. Four years ago I received an average of fifty pounds to the hive during July and August from toad-flax, which covers the meadows and grain fields after harvest, but circumstances have never been favorable since. The only crops upon which I have been accustomed to rely, have been blackheart in August, covering the basin of a drained mill pond, and aster in September, but this year these fail from drought and cold weather. So although I have been considering this a good year, I am going to get only about my usual crop—worth about an average of $3 per colony, spring count, and an increase of one-half. At this rate, you see, it would take a good many colonies to make a bread-and-butter business out of it for a large family, such as every man ought to raise. By the way, how is it, that most of the men who are making a specialty of bees are either lone bachelors, or else people who have no children, or may be one? "Increase" in beekeeping seems to be an unpopular policy.

2. If he imagines he has a taste for the management of bees, get one hive and try it, studying their habits in connection with the reading of some standard bee books—such as Root's A B C, and Alley's Handy Book and one or

more of the bee papers. Let him try to take just as much honey as possible, and not spend any time in trying only to increase his stock, and if he finds he likes the business, can take a profitable amount of honey, and can winter successfully, then let him buy as many bees as he thinks he wants to keep, and "go it." Bees for business can be bought cheaper than they can be raised.

3. I would advise his buying only one good full stock, for a start, from some one whom he can trust to have it in the best condition. After his judgment is cultivated, he can buy wherever he can get the best bargain, and transfer if necessary.

4. I prefer a light, single walled, eight-frame hive, with movable bottom board, one which can most easily be carried into a winter depository. I want them made so that one can be set on top of another and fit snugly without a rabbet, to admit of tiering up at pleasure.

5. I prefer the L. frame because it is fast becoming a standard and bees in that frame are salable, and it is as good for all purposes of taking honey and wintering as any other.

ANSWERS BY L. C. ROOT.

1. I know of no business that will pay better financially compared with the capital invested.

2. I would advise starting in a moderate way. Experience will be the best teacher.

3. I would advise the beginner to purchase his bees in the spring after the weather is well settled, and to buy the best swarms he can in some good movable comb hive.

The *best* are *cheapest*.

4. All things considered I prefer the closed end standing frame hive.

5. We use a frame 10×15 in. inside and consider it a good size.

Mohawk, New York.

ANSWERS BY GEO. W. HOUSE.

1. Beekeeping when made a specialty makes as good a showing as other pursuits and as compared with farming, stock raising, poultry business, etc., I find it leads them all. I had rather have 100 colonies of bees in a good location, than 100 acres of land, as financially speaking, and a much lighter business. Much depends upon management.

2. To buy at first a few colonies, give all the time he can to their study and management until he is competent of making a specialty, or can devote his whole time and thought to the business. It would be *best* to spend one whole season with an apiarist who thoroughly understands the business. All novices should become thoroughly conversant with bee literature.

3. I should advise purchasing only in such hives as one wishes to adopt, and always purchase full colonies. They are much the cheapest in the end. Transferring in the hands of a novice generally proves disastrous.

4. For answer to this question see my article in "Alley's Handy Book," have not the time or space to answer here.

5. The most simple hive having movable frames, is the most practicable and best. Use either the Gallup or Langstroth frames, depending upon the locality. They prove the best everything considered.

Fayetteville, N. Y.

ANSWERS BY P. H. ELWOOD.

1. I think that the same amount of energy and limited ability that I have employed in the bee business would have brought me more dollars and cents and less stings in some other vocation. I also think it easily proven that beekeeping is conducted at a loss rather than at a profit by a majority of beekeepers, in the production of comb honey. After deducting the expenses from the receipts (when that can be done) the remainder shows an inadequate salary for the beekeeper. When conducted with some other business the latter very often supports the bees even when the beekeeper supposes his bees are a source of income. Those of us who are widely acquainted with beemen know that, as a class, they are barely securing the comforts of life for themselves and families with hardly any of the luxuries, and that they are making a wholly inadequate provision for that "rainy day" that comes in the history of almost every family. It might be profitable for beekeepers to consider why such a state of things exists.

2. If I thought him likely to make the business a success, I should advise that he thoroughly learn the business first by employment with some practical beekeeper. If that is not possible I should advise him to procure a few

hives and care for them in connection with the business in which he is now engaged until he makes their management a success, always remembering that it is much easier to succeed with six swarms than sixty, as success is as much more certain with the latter number than with ten times that number.

3. If without experience in handling bees, I think well of buying nuclei and would prefer movable comb hives to his attempting to transfer.

4. I prefer the Quinby hive in some form. It is undoubtedly the best hive to winter and spring bees in and that is more than half the battle in this climate.

5. I prefer the Hetherington size of the Quinby frame, I judge this frame is as easy to manipulate as any and kills as few bees when properly handled. I am not so bigoted as to suppose there are no other good hives and would keep what I had if good.

Starkville, N. Y., Sept. 7, 1883.

ANSWERS BY G. W. DEMAREE.

1. In the hands of competent apiarists beekeeping pays better with us than most rural pursuits. I know several live young men who have realized over a thousand dollars each from their own labor and skill, in their apiaries the present season.

2. Read up the subject by all means, but this is not enough, he should see "practice." This may be done by visiting practical apiarists, or what would be better work at least one season in some practical apiary. Or, if he is willing to get on slowly at the start, he can apply his reading to actual practice on a few gentle colonies of bees till he becomes a "self-made" apiarist, as many of us older ones had to do years ago.

3. Yes, in a country like ours it pays best to buy bees in boxes and transfer them.

4. The old style single wall Langstroth hive with the portico left off: because no other protection is necessary for wintering or summering bees with us; and because no other form or style of hive has ever given better results.

5. The shallow Langstroth style — a frame that is longer than it is deep: because the much worn theory that bees cluster in a "perfect sphere" in the brood nest, is a false theory, not sustained by the facts. The spherical form of the cluster is always elongated with the openings between the combs, and hence such a form of frame is best adapted to the habits of bees. But the greatest of all the "whys" is, because this style of frame has given me more satisfactory results than any other form or style.

The foregoing questions all present wide fields for discussion, which could not be indulged in here.

Christiansburg, Ky.

ANSWERS BY E. E. HASTY.

1. Beekeeping with me is only moderately profitable.

2. To start with few colonies, and build up his knowledge and his apiary together.

3. Of the three ways mentioned I should advise the first. Getting a few good colonies in boxes and hiving their swarms in frame hives might be still better—less liability to lose all the first winter.

4. The hive I prefer just at present has not been tested long enough to be generally recommended. It is a one story hive, double walled, chaff packed, and sized to hold 12 Gallup frames. Sections are put on *without any upper story*, merely inclosing them tightly with a thickness of cotton cloth, the roof being held over all by weights.

5, My apiary when purchased had two of the best frames known, in about equal numbers; namely, the Gallup and the Langstroth. For convenience in handling and general good qualities I prefer the Gallup; but I cannot bring myself to discard the Langstroth yet, on account of some decided advantages it possesses—notably because it greatly excels in wintering the bees.

Richards, Ohio.

QUESTIONS BY S. L. VAIL.

Will J. Hedden please answer:

1. Would bees be any the better off by having winter passages cut in the comb when wintered in a good cellar?

2. Is it *advisable* to feed meal early in the spring when they have plenty of honey, and we do not want the bother of feeding *syrup?*

3. Which is best for winter when in the cellar, honey boards or quilts?

Coal Creek, Iowa, Sept. 7, 1883.

[We sent these questions to Mr. Hedden for answers but as he was absent from home they were returned. They will probably be answered next month.—Ed.]

ANSWERS TO QUESTIONS IN AUG. NO.

BY LINDA FLORA.

1. I never count on getting much surplus honey after the 10th of Aug., except there be a large crop of saw palmetto berries (as there is this year) when the season closes about Dec. 31. We have quite a flow from the middle of Sept. until the second week in Nov., but do not always consider it advisable to take it from the hive; rather take out all the summer honey to give room for it.

2. When the last flow is over I leave it right where it is, both in brood chamber and *top* sections and there it remains until the middle of May, unless I am compelled to take it out to make room for more.

3. I re-queen whenever I find one failing.

4. I do not intend to let more than four or five weeks pass at any time of the year without a look at each colony. Bees can be handled here at any time and so are liable to get out of shape at any time.

5. They should always have enough honey the 10th of Aug. to carry them through the winter.

6. *Here* the proper condition is, hive on its summer stand, entrance contracted, top section on, both sections full of combs with at least twenty pounds of honey in them and everything snug and tight.

6. I want as many young bees as I can get without stimulative feeding. As bees fly nearly every day more or less, the old residents wear themselves out in a short time; but as brood raising seldom ceases entirely, the colony commences to gather about the middle of Jan. strong in numbers.

8. If I get a crop of dark honey during the season I use it for winter stores. I never feed sugar except there be a drought in April and I am out of dark honey. All things considered, the dark honey is cheaper than sugar with me. If I were north I think I should prefer sugar.

9. I see that they have enough to carry them through the first week in Aug., and then take out or let remain as the fall crop proves more or less abundant.

10. Never winter in any other way than on summer stands and run no risk by leaving them there.

Florida, Aug. 9, 1883.

LETTER BOX.

Christiansburg, Ky., Sept. 4, 1883.

Friend Locke: I have now received four numbers of the Apiculturist, and they are enough to insure your success in the future. There is a severe drought prevailing here now, and the prospects of getting the usual fall supply of stores for wintering our bees without feeding, are not very flattering at this writing. We do not despair yet; rain may come in time to help the cause some, otherwise we shall have to feed to some extent to make up the deficiency.

G. W. Demaree.

Dear Sir: The answers to questions sent me by Mr. J. H. Chase, in regard to a proper cellar in which to winter bees, will be delayed until next month on account of ill health.

L. C. Root.

Stratford, Ont., Aug. 16, 1883.

Dear Sir: The honey crop about here is enormous. Good beekeepers will be able to report more than 100 pounds per colony. All the honey was made last year after this time and the conditions for a good fall flow are nearly similar. There is apparently no let up in the white clover yet. It is still blooming away and likely to continue so for some time. I like the apiculturist exceedingly. The bound volume will be very useful, more so to my mind than the regular text books, as the magazines always contain the freshest thoughts of the masters of the business. Yours fraternally,

C. W. Young.

Pine Plains, N. Y., Sept. 10, 1883.

Dear Sir: We had a heavy frost Sept. 5, and a very heavy one Sept. 9. Everything is frozen. The fall has been very unfavorable, only two days since the middle of July that the bees have brought in any surplus honey.

Respectfully yours.

G. H. Knickerbocker.

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All communications should be addressed to S. M. LOCKE, Salem, Mass.

PLAIN TALKS ON BEE CULTURE.

BY J. E. POND, JR.

VI.

USE OF SEPARATORS.

So long as we work for comb honey in small sections, just so long must we use some means, by which our honey can be capped in shape to crate. I am well aware that the use of separators detracts somewhat from the amount of honey deposited, but this affects the crop more when the yield is light than it does when the bees are gathering rapidly. As it is claimed, and I am inclined to admit the claim, the separators as now used prevent large clusters forming in the sections, and thus are the means of preventing the requisite amount of heat necessary for speedy comb building to be kept up. I am of the opinion that this can be remedied to a certain extent by warmly blanketing the crates at night, or during a cold spell; this will serve to retain the heat, and be of benefit for that reason. Perhaps it will be well to use separators when honey is coming in rapidly, and remove them when the yield slackens. I think it will be well to test this matter and that of blanketing thoroughly.

SHALL WE GLASS OUR HONEY?

The question of glassing honey will depend altogether upon the requirements of the particular market in which it is offered, or the opinions of the dealers in case they cater to more than the local buyers. It has been considered a necessity as a rule to glass boxes containing over two pounds; but this has been a matter of taste to a certain extent, and will always remain so. Retail buyers or consumers may and probably will object to glass on small sections, especially if they have to pay for the glass by weight; and then again there is but little necessity for glassing sections containing one pound or less, as such can easily be crated in two or even four dozen crates so safely as to bear transportation almost any distance.

For pound sections, I have adopted a plan which proves generally satisfactory, of putting a piece of square pine deal, one-sixteenth of an inch thick, and as large as the section, on each side, and slipping a rubber band round it. These thin boards can be furnished the retailer with the crates to be used by him, and, as they are inexpensive, will detract but little from the profits of the producer.

WHAT SIZE BOX SHALL WE USE?

In the matter of boxes we are wholly at the mercy of the market again. He who expects to dispose of any goods at remunerative prices must put them up in such shape that they will please the eye by their attractiveness, and suit the condition of the pocket book of the would-be-purchaser.

One great objection found to comb honey when put up in large packages is that it cannot be handled without difficulty on account of dripping, thus making it almost impossible to put up a broken package in neat shape. The one pound section has seemed to fill the bill, as the shape is neat and attractive, and the size is such that anyone who can afford the luxury at all can afford to buy that size and it can be put up in a simple paper package so as to be carried safely in the hottest weather. Demand and supply usually accommodate themselves to each other, and if the demand is for a larger or smaller section than one pound it will be known at once, and a supply will follow. The principal question is, will it pay to put up comb honey in sections smaller than one pound? All bee-keepers know well that it will not unless a considerably higher price is offered for the smaller sections. My experience has been, that honey can be gathered in two pound sections considerably cheaper than in one pound; and that when honey is selling for twenty-five cents per pound in one pound sections, forty cents at least should be realized for it in one-half pound, in order to make the same ratio of profit. But, as I said before, the producer must watch the state of the market (which as yet has not become very sensitive) and do his best to cater to its requirements. As our people begin to learn the value of extracted honey, and that dealers are serving them to a pure article, the question of comb honey will be of little consequence; and the final result will be that extracted honey will become a necessity, and have a ready sale at a fair price, while comb honey will be reckoned a luxury, and command a fancy price depending upon the laws that usually govern trade.

Foxboro, Mass., Aug., 1883.

THE CAUCASIAN BEES.

BY JULIUS HOFFMAN.

IN 1880 I received my first importation of Caucasian bees from Weadikowsky, a section in the Caucasus mountains.

The worker bees of this race are rather dark with a heavy silver gray hair covering, and the wings on the abdomen show a very narrow stripe of yellow.

The queens of this race are somewhat smaller than the Italian queens and black with yellow rings on the abdomen, similar to those of the workers, only smaller.

The drones are rather dark with heavy hair covering, but not as dark as black drones, and they show a little yellow but not much.

This is the most quiet and gentle race of bees (when pure) with which I am acquainted. When the combs are being handled they remain quiet and do not run about as do the blacks or Cyprians and are even more marked in this respect than the Italians. The Caucasian colonies keep their drones late in the season and at this date even (Sept. 22) they have many drones.

In seasons like that of 1882, where, in this section, bees of the other races gathered only a rather dark honey from mustard and the like, the Caucasian bees stored a honey whiter than either basswood or white clover, and in 1882 this was the only first-class honey produced in my apiaries.

As I was very busy I was unable to ascertain from what source the Caucasian bees gathered this honey, but think that it may have come either from Alsyke or red clover. One feature worthy of notice was that every Caucasian colony worked gathering in this honey, so much so that my assistant in the apiary could designate the colonies of this race by their having stored this white honey.

The Caucasian bees finish and cap the box honey even more beautifully, if possible, than the blacks, as they do not make the cappings so thick or heavy, nor so flat or so near the honey as do the Italians.

In amount of honey gathered per colony they equal any race of bees that I have tested. One feature peculiar to this race is that they do not work so well on buckwheat as do some of the other races; hence they would not do as well where buckwheat is abundant. Another bad feature of the Caucasians is that, like the Cyprians, when they desire to swarm they start from seventy-five to one hundred queen cells, from which, however, they hatch a majority of good queens. While they are great swarmers yet they are not very persistent in this respect and are easily controlled.

They do not commence to breed quite as early in the spring as the other races; hence they do not spring dwindle so much, and notwithstanding that they begin to breed later in the spring yet when the first flow of honey comes you will find these bees in as fine shape as the others.

As regards wintering the Caucasians compare favorably with the other races.

I would state in conclusion that I have no queens or bees to sell, and my greatest object in importing and testing these foreign races has

been to secure the race or strain which shall be capable of securing the largest amount of fine honey, other things being equal, as I am strictly a honey producer.

Fort Plain, New York, Sept. 22.

BREEDING BEES FOR WINTERING QUALITIES.

By Henry Alley.

In the August number of the Apiculturist, friend Pond criticises my article on "The Winter Problem," given in the first number of your excellent journal. Friend Pond says that my "ideas are good, but are all theory." Well, now I have been rearing queens for many years, and does my friend suppose that my only object in breeding bees was the money that I should obtain for them? And does he suppose that I have neglected to study carefully the improvement of the races by selecting breeding queens from those colonies having the largest number of the essential features and markings which tend toward making a desirable strain of bees? On the contrary, I have always bred queens with this object (the improvement of the race) in view, and shall never rest content while I can add to the value of my breeding stock.

In selecting my breeding queens I have always paid strict attention to the selection of those whose colonies showed the largest number of good qualities such as wintering, honey gathering, prolificness, gentleness and beauty. The breeder who neglects this will fail to obtain the desired results and should soon retire from the business. When writing, I always endeavor to avoid untested theory and to confine myself to fact, as theory in bee matters does not always work well as many novices can attest.

When we have selected a queen for breeding purposes from a colony that has wintered well, one whose worker progeny were fine honey gatherers, and uniformly marked; a queen that has all the desirable qualities which constitute a first-class breeding queen; then no *special* attention need be taken to rear queens that will possess all the qualities above mentioned, but who, friend Pond, will rear queens from one that he knows nothing about?

The breeder should thoroughly test all his breeding queens before he rears a single queen from them and this is the only sure way to keep any race or strain of bees up to the standard.

No breeder who wishes to produce yellow queens would use a breeding queen whose progeny he had not seen. Now why select one whose progeny has not been tested regarding the other requisite qualities and markings?

I have given considerable time and attention, this season, to testing breeding queens for use next year, and I must say that I never had better results in rearing fine queens than I have had this season.

With the exception of winter qualities (which I shall test the coming winter), I could not ask for better results from testing my breeding queens and I think that they must prove all that I could desire in this respect, coming as they do from perfect stock and from a thorough strain of bees.

Now, friend Pond, do not accuse us with having too much theory and too little practice, as we think that our article will bear a practical interpretation.

Wenham, Mass., Sept. 10, 1883.

BEE-CULTURE IN THE SOUTH.

By G. W. Demaree.

V.

In my opinion, after a thorough knowledge of the honey bee, and best methods of producing and marketing of honey, the matter of "location" is of the greatest importance. I have studied this matter thoroughly of good locations for the production of honey, and I believe that the position I occupy as President of the Kentucky Apicultural Society, and as a writer on bee culture, has enabled me to gather much valuable information on the subject.

I have just returned from the great Southern Exposition at Louisville where I was in consultation with prominent apiarists during "beekeepers' week," from many parts of the middle and southern as well as from the northern, states, and these pleasant interviews have strengthened my former convictions that bee culture in the south will ultimately assume wonderful proportions. During "beekeepers' week" the Kentucky Beekeepers' Society held its fourth annual meeting. Its sessions were well attended by its members, and many visitors were present. Reports from members elicited the fact that beekeeping in the south pays better than most rural pursuits. Many young men are commencing the business with the best of prospects looming up before them. Our bee and honey exhibition was a credit to the beekeeping interests of Kentucky, and it attracted more attention than the great horticultural exhibition which embraced the strength of all the horticultural societies of the South.

The Kentucky Beekeepers' Society, at its last meeting, set on foot a work which, if successful, will give it a prominent position among the local societies in the bounds of the great North American Association. A committee of three live, enterprising apiarists — to which the President of the Kentucky Society was added by motion— was appointed by the chair, whose duty it will be to collect information concerning unoccupied territory in the state of Kentucky; in fact, to gather all the information possible as to the adaptability of our state to the production of honey. This information will be reported to the society at its next annual meeting, and if the com-

mittee has good success the work will be printed in pamphlet form for distribution. The society is aware that this committee — because of the ignorance of the uninitiated in bee culture — has an herculean task before it, but the fact that Dr. N. P. Allen, ex-president of the National Association, whose energy is untiring, is at the head of the committee, will insure an exhaustive effort to bring the enterprise to a happy termination.

From information gathered in convention and from private sources, the present has been a wonderful "swarming" season in the middle and southern states. The average production of honey per colony, where swarming was kept in bounds, was at least 100 lbs.

In my own apiary the swarming fever amounted to a mania; it looked at one time as though the whole apiary would disband entirely. I returned, perhaps, one hundred swarms after I had obtained what increase I wanted, and had made preparations for. Every colony in my apiary that could be controlled and kept in reasonable bounds was capable of giving 100 lbs. comb, or 150 lbs. extracted honey.

During the beautiful weather in the latter part of June I extracted, from some hives worked by thoroughbred bees, about 800 lbs. of the whitest and thickest honey I ever saw in all my experience. At that time my bees — orange-banded variety — were working on white and red clover, but I attributed, at the time, the whiteness and density of the honey to atmospheric causes. Of this lot I made up my exhibit of extracted honey at the show at the Southern Exposition. It took the first prize for extracted honey.

Mr. Muth of Cincinnati, perhaps the largest honey dealer in the west, as well as a practical apiarist, examined this premium honey and expressed his belief that it was red clover honey. Others were of the same opinion. The fact that no other plants were yielding honey at the time except white clover and the red clover, as indicated by the bees working on it, and as the samples were too white for white clover honey, it forces the conclusion that it was red clover honey. The colonies which produced this fine, thick, white honey will be taken under special care for future experiments.

Christiansburg, Ky., Sept., 1883.

FOUL BROOD.

By Henry Alley.

Very few of the thousands who are engaged in active beekeeping in this country, have the slightest conception of the danger which we are all in of having our entire apiaries annihilated by that dread scourge *Foul Brood*. The fact that but few beekeepers are acquainted with the symptoms and nature of this disease makes the danger all the more imminent.

True, many articles have been written in the various bee journals upon this subject, from the time

of Father Quinby until the present; and yet, a very small number of those who read these articles care anything about the results until they have suffered from this worst of all pests of the apiary.

I know of several cases where persons here in New England have purchased from certain dealers full colonies of bees and nuclei which were found to be affected with this disease. Who can compute the extent of the injury that may come to apiculture in this country by the spreading of this scourge through carelessness or ignorance, unless active measures are taken to prevent it? One infected stock might and probably would be the means of destroying all the bees in a whole county.

Suppose, for instance, that Mr. B —— who is entirely ignorant of what foul brood is, and who does not even suspect that he will receive such from a reliable dealer, purchases a colony of bees which is diseased. In due time, he opens his hive to examine the colony and perhaps to exchange the combs with other colonies in forming nuclei, rearing queens or otherwise; it may be that when he does this there is a scarcity of honey and all beekeepers know that at such times robbers are plentiful and some of them are sure to secure some of the honey while the hive is open. Whenever a bee carries a load of honey which contains the foul brood fungi to its home and deposits it in the cell, death and destruction are sure to follow. These will follow even more quickly where the combs are interchanged, resulting sooner or later in the destruction of the larger portion, if not the whole, of his own apiary together with that of his entire section.

This is no idle talk but the plain statement of what American beekeepers may expect in the future unless more precaution is taken in this matter.

I know of a certain party who claims to have shipped a large number of full colonies and nuclei this season, and if all of those he has sent to other parties are as badly diseased as those that he sent this way, he may depend upon hearing from them ere long. The fact that he may have been ignorant of the condition of the colonies and nuclei when he shipped them will not change the results and should not lessen his responsibility in the matter; in fact his ignorance would make it doubly dangerous. Who can picture the results if a large proportion of those sent out were diseased?

Now it is imperative that we consider this matter fully and decide upon some means for properly educating the beekeeper and protecting American apiculture from the effects of foul brood. Now, my friends, you who happen to read this article and have purchased bees, please examine them for foul brood and if you find any, please let me know, together with the name of the party from whom you purchased the bees. I have more to say, ere long, regarding this matter.

Wenham, Mass., Sept. 10, 1883.

EDITORIAL.

In many respects the convention of the North American Beekeepers' Association, lately held in Toronto, Ont., was one of the most pleasant and profitable that we ever attended. Our Canadian friends seemed to vie with each other in their hospitable attempts to entertain us. The council chamber was filled almost to overflowing, during the entire convention, with a large gathering of intelligent and enthusiastic beekeepers.

One of the most prominent and pleasing features of the meeting was the presence of Rev. L. L. Langstroth, the veteran beekeeper, who has given to us the movable frame-hive, and who has done so much for the advancement of apiculture in America.

We may well be pleased to know that after being so afflicted with disease, that he has been obliged to give up the study of apiculture for many years and has been denied the privilege of attending a convention since 1870, he has again been restored to health and intends to work in the interests of beekeeping literature.

His remarks were very forcible, and his language eloquent, while his reference to his "old Quaker friend" (Moses Quinby), who was so closely connected with him in his early studies and experiments, was very touching. We are all glad to welcome him back to our ranks and hope that he may be spared to his home and to apiculture for many years to come.

From the first the meeting seemed more like an old-fashioned New England Thanksgiving gathering than the convention of an association met for the purpose of deciding upon matters of importance and framing laws which shall govern the beekeeping fraternity. True, it was a great pleasure to grasp the hands of those with whom we have become acquainted through the journals and have longed to meet, or the old-time acquaintances with whom we have associated on similar occasions in times gone by; but this should form only a small portion of the object of such a convention the expense of attending it being too great.

This peculiar state of affairs seemed to be the governing feature of every session, and most of the important and vexed questions which usually come up for discussion were either forgotten or quietly passed by. There was no appointing of committees, no reading of and accepting the secretary's report of the last meeting (or at least we failed to hear them read), and, in fact, the only business of importance that we knew to be transacted was the election of officers for the ensuing year and selecting and appointing the place of the next meeting. There seemed to be an entire lack of organization or system in conducting the proceedings. Questions which should have been answered by a committee appointed for that purpose consumed an unnecessary portion

of the valuable time of the convention. While at times conventions are overburdened with long essays, yet we feel assured when any subject of importance is to be brought before the meeting it is far better that it should be introduced with a short paper prepared by some person who is especially adapted to write it; we think that this has been found a valuable aid in other bodies, and would be equally valuable to us, but at the Toronto meeting there was almost an entire lack of papers on any subject.

We feel convinced that there are many obstacles to be overcome ere the subject of how to organize and conduct an association which shall properly and most fully represent the interests of American beekeepers is mastered. What we most need is a national beekeepers' association which shall be made up of delegates from each state association, whose expenses or a portion of them, at least, shall be paid by the state association.

When we shall have formed such an association as this, and have established a permanent location for the place of our annual meeting or at least one which shall change only occasionally, then and then only can we hope for the desired results.

Our Canadian friends evinced great pride in escorting us to the fair grounds, where in a building about 40 × 120 feet, the honey and apiarian supply exhibit was held, and justly merit all the praise that has been bestowed upon them, for there never has been an exhibition of like character and like magnitude made on this continent.

As we looked upon the vast mountain of beautiful white honey in sections, and the extracted honey in handsomely labelled receptacles, ranging from two ounces to five pounds, piled tier upon tier to the lofty rafters of the building, we could but wonder where all this honey came from; and we hope and trust that the majority of our beekeepers who witnessed it returned home with the determination to see if the beekeepers of the United States could not get up a honey exhibition worthy of the comments of their Canadian cousins. There is no reason why we should be so backward and behind the times in this matter.

The Northeastern Beekeepers' Association turned out in force, and there were present the President, Secretary and Treasurer, together with about forty New York beekeepers. We also had with us Mr. Miller, President of the Northwestern Association. In fact, almost every portion of America, north, south, east and west, was well represented, and we all had a "good time," and shall long remember our pleasant trip to Toronto. There are many things that we would like to say, but space forbids at this time.

INTERESTING NOTES.

Charles H. Lake, manager of Sunny Side Apiary, Baltimore, Md., kindly sends us copies of the Baltimore Sun of Sept. 8, contain-

ing reports of the County fair held at Baltimore, from which we take the following notes:

"One of the most attractive exhibits at the fair is the apiary, in charge of Mr. Charles H. Lake, proprietor of the Sunny Side Apiary on Greenmount avenue. Mr. Lake has on exhibition a lot of fine Italian bees in glass cases or frames, showing the bees at work and the movements of the queen bees which attract much attention. He has also on exhibition a hive of bees which are allowed the free use of the grounds, and the owner handles them with all the freedom of pet canaries. He has receptacles for honey in the shape of hearts, shields and stars, and has trained the bees to fill them so as to make novel ornaments for the table.

In the poultry department Mr. A. L. Bosley, of Highland yards, Towson, and C. H. Lake, Waverly, have 45 coops of fine bred chickens, ducks, etc., including all the best varieties, such as Plymouth Rocks, Longshons, Light Brahmas, Silver Gray Dorkings, Silver Seabrights, imported from Scotland, Crested and Pekin ducks and other varieties. Mr. Lake has a Longshons pullet which laid 158 eggs in 193 days, 13 of which weighed 3 pounds and 11 ounces. The same pullet hatched 23 chickens out of a setting of 25 eggs. He has also on exhibition in the household department a lot of fine grapes of various varieties, grown right in his apiary, and says there is no truthfulness in the assertion that bees destroy grapes. He says that wasps and hornets puncture the grapes, and when they are once punctured the bees destroy them, but of themselves bees cannot bite into or puncture a grape.

Yesterday was the last day at Timonium, and the exhibition of this year has probably been the most successful the society has yet held.

The apiary, in charge of Charles H. Lake, had many visitors in spite of the bees flying about. The ingenious idea of making the cells for the bees was illustrated there. Sheets of wax were passed between two rollers, and came out with cells already designed. The bees were all of Italian variety. In one hive the swarm was free. The glass cases of another were placed upon separate stands, and all the processes in the life history of the bee could be seen. The queen, easily recognized from her large size, was industriously depositing eggs in some of the cells; working bees were preparing other cells for eggs. Some of the young bees, having passed from the larva state, were gradually working their way out of the cells in which they had been imprisoned, fed in the meanwhile by the workers. From one hive of the bees 245 pounds of honey have been obtained in a single season."

We are pleased to note that friend Lake succeeded in carrying off the following premiums, viz.:—"C. H. Lake, colony bees, honey in comb, display, gate honey, first premium, each $4; display bees and hive, first premium, $10. C. H. Lake, collection hardy grapes, first premium, $2.

Poultry.— Bosly & Lake, first premiums on black Cochin fowls, duckwing and white pile game Bantams, black Hamburgs, white and brown Leghorns, Silver Seabrights and crested ducks; also on light Brahmas, first and second; also second premiums on buff Cochin, partridge Cochin and Longshon chicks, black Spanish chicks, Seabright Bantams, white Guineas and Pekin ducks."

Such reports as the above are certainly encouraging and much

credit is due friend Lake for the energy and perseverance he has displayed in building up the apiary of which he is the manager, and also for the results of his labors as shown in this report. Not only are his labors rewarded by success in this instance, but the business world which is looking with interest at the progress of apiculture will take note of this as well as every apiarian exhibition of like character and our agricultural societies, recognizing the necessity of assisting to establish apiculture in its proper position, will adopt means to favor those who wish to make apiarian exhibits at our fairs.

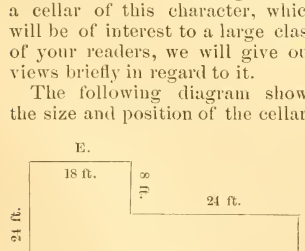
CORRESPONDENCE.

Editor of the Apiculturist:

Mr. J. H. Chase writes us giving a diagram and description of his cellar and asking if it is a desirable place in which to winter bees.

As there are many points in connection with wintering bees in a cellar of this character, which will be of interest to a large class of your readers, we will give our views briefly in regard to it.

The following diagram shows the size and position of the cellar:



The walls are built of cobble stones and are 7 feet high and 18 inches thick. On the east and north sides the earth is about 18 inches from the top of the wall, the south side within about 4 feet of the top and on the west side the wall is banked almost one-half way across.

The cellar has a clay bottom and in the spring and sometimes in the winter, when there is a thaw, the water comes up through the bottom forming quite a stream which runs out through the drain.

The opening in the drain is four inches square and three feet long, passing under the cellar-wall, the outside being on a level with the top of the ground.

A slide regulates the opening in the drain, and when the slide is opened a stream of cold air will blow across the cellar. The outside entrance to the cellar is closed with two doors.

The temperature ranges from 32° to 35°, and vegetables do not freeze in the cellar; but in cold times the frost comes through the west wall and shows white, and about the last of March it is very damp.

After describing the cellar, the writer asks, "Will it do for me to try to winter bees in such a cellar?"

It will be seen that the cold, damp condition of this cellar is not favorable for wintering bees, and the cellar is much too large. Many persons have lost their bees by attempting to winter them in a large cellar, making the common mistake of placing the hives against the damp walls.

Bees may be successfully wintered in a cellar of this kind if proper precautions are taken by selecting for the purpose a portion of the cellar under a room where a continuous fire is kept during the entire winter. A room $12' \times 12'$ will be sufficiently large for from fifty to one hundred stocks of bees when made in a cellar of this kind. Remember that the larger the number of stocks in proportion to the size of the room, the more thorough will the ventilation be. Thor-

ough ventilation is very essential where the cellar is damp.

This room should be made of good, sound matched lumber, so that its sides shall be tight, and so constructed that there is a space of at least one foot between the walls of the room and the cellar walls; two feet or more would answer still better. To ventilate this room, pass a five-inch stove-pipe through the floor overhead and attach it with a "T" entering it into the stovepipe at some distance above the stove, so as not to affect the draught of the stove.

The benches upon which the hives are to be placed should be about one foot high, and I prefer that these benches be made short so that when putting the bees in and taking them out in the spring but few of the colonies need be disturbed at one time. These benches should not touch the sides of the room, and if they rest firmly on the cellar bottom, they may be piled up several tiers high without being subject to any jar from above.

While a properly arranged cellar is important, yet success in wintering will depend largely on the condition of the stocks and the manner in which they are placed in the cellar. The experience of different beekeepers seems to vary greatly as to the desirability of giving upward ventilation.

Hetherington Bros. of Cherry Valley and P. H. Elwood of Starkville, N. Y., cover their frames with a tight cap, allowing no upward ventilation and succeed best in this way, but they winter in clamps built partly above ground. We can winter bees much more successfully in our cellars by placing a quilt over the frames so as to allow the moisture to escape; also we consider it very essential to have an opening in the bottom boards of the hives, directly under the clusters, so that the bees may be certain of their freedom, and they are also much less liable to become confined to the hives as is often the case when the entrance becomes closed by the falling of dead bees.

There is a great diversity of opinion as to the desirability of ventilating the cellar from the outside at the bottom. I am, however, fully convinced that it is not desirable to bring in air through a tube which shall admit of a draught of cold air. If air is to be admitted it should be brought for some distance underground or warmed outside of the room containing the bees, and admitted to the room in a manner that shall not disturb the bees. Test the room with a thermometer, and if it can be kept at a temperature of from 45° to 48° without lower ventilation I should prefer it.

To winter bees so that all stocks will come through populous enough to stand our cold spring months will yet require much hard study ere it is thoroughly mastered.

Very truly yours,

L. C. Root.

Mohawk, N. Y.

EXCHANGES.

The Standard Langstroth Hive and Frame, by L. L. Langstroth. — Before inventing my movable frames I used bars, in a hive with movable top and bottom, by which the bars could be worked to much better advantage than by side-opening doors. My latest style of bar hives was 18½ by 18½ by six inches deep, all in the clear. At that time (1851) honey, to bring the best price, had to be in combs built in neat glassed boxes, and this shape of the hive gave an unusually large surface for such

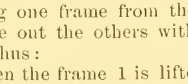
supers. The walls of these hives were double glass, to give the dead-air space, which protected the bees against extremes of heat or cold, and sudden changes of temperature. That fractional $\frac{1}{8}$, which has puzzled so many, gave room for two strips of wood, each one inch wide by $\frac{1}{16}$ thick, against which the double glass could be fastened with glazier's points. One pane of glass, 18 by 12, a common commercial size, could be easily cut so as to answer for one side. My movable-frame hives were first made in the spring of 1852, in the city of Philadelphia — some six months before the patent, which was applied for in January, was issued. These hives were $14\frac{1}{8}$ inches from front to rear, $18\frac{1}{8}$ from side to side. Early in 1853 my hives were made in Greenfield, Mass., and the first edition of my book on the "Hive and Honey-Bee" was published in May of that year. The present size of hives, $18\frac{1}{8}$ from front to rear $14\frac{1}{8}$ from side to side, and ten inches deep, was then adopted. The dimensions, $18\frac{1}{8}$ from front to rear, and 10 inches deep, have never been changed; but that from side to side may vary according to the number of frames, some preferring 8, some 10, and some even more. I am correctly quoted as having said, in the *American Bee Journal*, in reply to an inquiry, "Considering the accuracy which may be obtained in making the frames stiff and perfectly square, I prefer the Root and Newman measurements." What I meant was, that frames could be made so stiff and square as to allow of their being $\frac{1}{4}$ of an inch longer than the old standard size, and that the $\frac{1}{4}$ inch (instead of $\frac{3}{8}$), still left between the uprights of the frames and the front and rear walls of the hive, gave all the room needed for their proper manipulation. It never occurred to me that any one could possibly suppose that I meant my frames could be *improved* in squareness or stiffness by making them only $\frac{1}{4}$ of an inch longer! I then thought that it was quite a desirable point to gain this $\frac{1}{4}$ inch, as in ten frames it gave an increase of comb surface enough for rearing over 1100 bees.

As such large operators as Heddon, Root and Baldridge, insist that $\frac{3}{8}$ of an inch space between uprights of frames and hive is the least that can be safely allowed; and as hives are not unfrequently made, even by good workmen, which vary a little from the true dimensions, and further, as some kinds of lumber are badly affected by variations in the weather, I am now of the opinion that $\frac{3}{8}$ is better than $\frac{1}{4}$.

Considering the frequency and severity of my attacks of head troubles, which not only prevent me from taking any interest in bee matters, but which render any thought upon such subjects both painful and dangerous, it will not seem surprising that it is only within a few weeks that I have learned that the change in the size of the standard L. frame was made to carry with it *a change in the size* of the standard L. hive! I have no recollection of ever having read the article to which Mr. Baldridge thinks I ought to have responded, until I saw his reference to it in the *A. B. J.* of August 8th, or I should before this not only have corrected his misunderstanding of the reason I gave for preferring that extra $\frac{1}{4}$ inch, but should have expressed my deep regret that the *size* of the standard L. *hive* had been changed; not that slight changes in frame and hive are of any special importance, except as they interfere to any extent with the cardinal principle, that any L. frame ought to fit in every L. hive. Even after I ceased to use the

double glass walls, the fractional ⅛ was retained to prevent confusion by departing even to so small an extent from the size then so widely disseminated. It is, however, very easy to exaggerate the inconveniences which have resulted from these slight variations. One will contend that the standard L. frame cannot be used in the Root and Newman L. hive, and many will actually prefer that size of hive for them, as giving more room for the safe and rapid handling of frames. If both hives and frames are *very carefully* made, *I* find no trouble in using the R. and N. frame in the standard L. hive. The great length of the top-bar of the L. frame enables me, after removing one frame from the hive, to take out the others with great ease, thus:

When the frame 1 is lifted out, the end C of frame 2 is drawn



towards the operator, without any lifting until the angle is large enough to remove it without danger of hitting the sides of the hives, so in replacing it the end 2 is first put on the rabbet and C can then be moved readily to its place. The long leverage of such frames greatly favors such manipulations. I would say here, that a variation of only ⅛ from front to rear, if it is on the side of making the hive *smaller* (say only 18 inches), is, for divers reasons, a much more serious matter than the extra ¼ inch; for in such hives it is well nigh impossible to have any free manipulation of the longer frames. I am using in my own apiary the Root size of frame in the standard L. hive, and find no trouble at all in doing so. I would even prefer, with hives and frames made as accurately as they should be, ¼ inch space, manipulating in the manner above described, to ½ inch, if the frames had to be squarely lifted out.

The conclusion of the whole matter seems to me to be this: The standard L. hive is 18⅛ inches from front to rear, and ten inches deep, all in the clear, and the standard L. frame is 17⅜, and not 17⅝; and I advise all who make new hives, if they can do so without too much loss, not to vary at all from these measurements. I certainly have no right to demand that the parties who are using the extra ¼ inch, both for hive and frame, should return to the old standard; but I hope that, instead of calling their hives the standard L. hives, they will call them the Root L. hives, as Mr. Root first used the extra ¼ inch. I presume that Messrs. Root and Newman, and other hive-makers, if not willing to return to the standard L., will have no objections to filling orders for Simplicity, chaff, or other styles of hives of the L. standard size.

Intending in another article to give in detail my reasons for adopting my standard size of frame, I will close by saying that I no more claim perfection for it now than I did in 1853, when in the full gush of enthusiasm over an invention which I hoped would revolutionize practical beekeeping.—*Gleanings.*

A New Bee Enemy, by Prof. A. J. Cook.—It has long been known to chicken fanciers that our poultry often suffer serious injury from a small mite. I have seen these little pests, red with the internal juices, so thickly clustered on boards, etc., in the poultry house, that to grasp the board meant death, by crushing, to thousands of these infinitesimal pests.

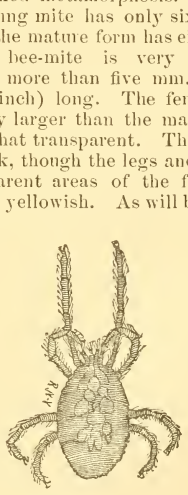
It has long been known that other mites attacked others of our domestic animals, like the cow, the horse, the sheep, etc. Other mites attack sugar, flour and cheese. The little red spider—also a mite—so thrives in a dry atmosphere that house plants are often destroyed by its blighting attacks. I have known the tidy housewife to be seriously annoyed by mites which had come from birds that had nested just above her window. The little vital specks fairly swarmed on the window panes. Other mites take up their abodes between the bases of the human fingers, while others still smaller inhabit the face pimples even of the graceful belle.

That insects are often preyed upon and destroyed by mites is a well known fact. Newport described a mite which he found on the larva of a wild bee; but that our honey bee is attacked and even destroyed by these little living particles is recent and most unwelcome news.

During the past spring a lady beekeeper of Connecticut discovered these mites in her hives while investigating to learn the cause of their rapid depletion. She had noticed that the colonies were greatly reduced in number of bees, and upon close observation she found that the diseased or failing colonies were covered with these mites. The strong and prosperous colonies were exempt from the annoyance. So small are these little pests that a score could take possession of a single bee, and not be near neighbors either. Mrs. S. feels certain that she found the same kind of mites on the church window of the town where she resides. Upon request she sent me some of these latter which were lost in the mails. The lady states that the bees roll and scratch in their vain attempts to rid themselves of these annoying sticktights; and, finally, worried out, either fall to the bottom of the hive or go forth to die outside.

Mites are not true insects, but are the most degraded of spiders. The sub-class Arachnida are at once recognized by their eight legs. The order of mites (Accarina) which includes the wood tick, cattle tick, etc., and mites, are quickly told from the higher orders—true spiders and scorpions—by their rounded bodies, which appear like mere sacks, with little appearance of segmentation and their small, obscure heads. The mites alone, of all the Arachnida, pass through a marked metamorphosis. Thus the young mite has only six legs, while the mature form has eight.

The bee-mite is very small, hardly more than five mm. (1-50 of an inch) long. The female is slightly larger than the male, and somewhat transparent. The color is black, though the legs and more transparent areas of the females appear yellowish. As will be seen



A New Bee Enemy (from life.)

by the figure, which shows the form and structure very accurately, the anterior legs are the longest. All the legs are five-jointed, slightly hairy and each tipped with two hooks or claws. Each of the mouth organs is tipped with a tuft of fine hairs.

The eggs which show through the body, as seen in the drawing, are mere specks of a color, and from the fact that there are several sizes in the gravid females, indicating separate crops, it is probable that these females are not creatures of a day, but possess quite a longevity. The mites were sent me in a bottle, and when they arrived there were very numerous eggs and several of the young six-legged mites occupying the vial with the more mature forms.

REMEDIES.

The fact that what would be prison to the mite would probably be death to the bees, makes this question of remedy quite a difficult one. I can only suggest what Mrs. Squire has tried — frequently changing of the bees from one hive to another, after which the hive can be freed from the mites by scalding. The trouble with this cure is the rapid increase of these Liliputian pests, and the fact that many would adhere to the bees, and so be carried along with them, and thus escape the hot water bath. Of course, the more frequent the transfer the more thorough the remedy.

IMPORTANT SUGGESTION.

I would suggest placing pieces of fresh meat, greased paper, etc., in the hives in hopes to attract the pests, which when massed on these decoys could easily be killed. If thought best, the traps could be screened by placing them in a box made of fine wire gauze so that the bees could not reach them. In such screens I should try placing pasteboard smeared with a thin coat of thick syrup, to see if the mites had a sugar tooth to lure them to destruction. On such a sticky surface it would be well to sprinkle flour, sugar, etc. If we can find in this manner some substance that will attract these little destroyers, and call them off of the bees, the battle is won.— *Rural New-Yorker.*

BOOK NOTICES AND REVIEWS.

We have received from the publishers a copy of Modern Bee-keeping; a Handbook for Cottagers: published for the British Beekeepers' Association.

It is a neat little volume of about 100 pages, illustrated and bound in paper. The typography is good and it is well gotten up. It deals with the subject of bee-culture in a plain and practical manner, giving just the kind of information most needed by its readers.

We are pleased to see that our English brethren are progressing rapidly regarding advanced apiculture and are adopting the new inventions and methods of managing bees. They certainly merit credit on the question of associations and we may well take lessons of them in this regard.

We would advise any of our readers who wish to become conversant with beekeeping in England to purchase a copy of this work; the price is nominal (one sixpence, about 15 cents).

NOTES AND QUERIES.

The fall meeting of the New Jersey and Eastern Beekeepers' Association will be held in New York city, at the Cooper Union on Wednesday, Nov. 7, 1883.

J. HASBROUCK, Sec.
Bound Brook, N. J.

A Watertown (N. Y.) man, who has kept an account of the weather, claims that it invariably repeats itself, and gives the following as

the results of his observations, viz.: All years ending in 9, 0 or 1 are extremely dry; those ending in 2, 3, 4, 5 or 6 are extremely wet; those ending in 7 or 8 are ordinarily well balanced; those ending in 6 have extremely cold winters; those ending in 2 have an early spring; those ending in 1 have a late spring; those ending in 3 and 4 are subject to great floods.

A short time since we had the pleasure of visiting friend Alley and found him quite busy among his bees. He has been exceedingly fortunate this season with mating his queens as out of over 900 which he has shipped but one has been reported as impurely mated, and this merely because the markings of the bees did not come quite up to the standard.

While there we saw some of the noted Albino bees and find that there is a marked similarity between their markings and those of the Holy Land bees which seems to sustain the theory that the yellow races of bees which we have had their origin in the Holy Land. We propose to experiment largely with the different races next season, to study the effects of crossing and making new varieties.

Several times lately our attention has been called to the question of foul brood. Now, if any person who thinks that his apiary is infected with it will send us by mail a small piece of brood packed securely in a small box, we will examine it and advise him regarding it. Brother beekeepers, unless great care is taken in preventing the spreading of this dread disease the time will come when it will call for extreme measures. We are well acquainted with foul brood and its ravages and advise our readers to be cautious how they trust to the efficacy of *salicylic acid*. We would call their attention to friend Jones' article in the August number, and bee notes in the June number.

The *Scientific American* for Sept. 22, 1883, contains an illustration and description of Thompson's Bee-hive Truck patented by Charles R. Thompson, Fort Omaha, Douglas Co., Nebraska. Judging from the illustration and description we should consider that the truck might prove just the thing for moving bee-hives about the apiary.

Friends McKay Dougan and L. C. Root & Bro. send us the following prize offers:

Dear Locke:—I will give to the person sending you the largest list of yearly subscribers (if not less than 22) by January 1, 1884, a good colony of pure Cyprian bees with young tested queen.

Your friend,
W. McKay Dougan.

Mohawk, N. Y.

Friend Locke:—We will send to the person sending you the second largest club of yearly subscribers (provided there are not less than 20) before the first of May next, a full colony of Italian bees with a queen from the stock that made us 484 pounds of surplus honey in 1881.

Very truly yours,
L. C. Root & Bro.

We would state that these, as well as the other offers that have been made, are free-will offerings for which we are more than thankful as it shows the extent of the interest taken in the Apiculturist.

Now, who will obtain these premiums. There are already two colonies offered for the largest club, one for the second largest and one for the third largest. We will gladly furnish all the specimen

copies that you may desire to use in canvassing.

Through the combined kindness of Mr. L. C. Root of Mohawk, N. Y., and Mr. J. W. Teffts of Buffalo, New York, we have secured a rare and valuable copy of a German work published in 1783, one hundred years ago.

The work was a present to Mr. Wall of Erie County, New York, given to him by his grandfather over fifty years ago. Mr. Wall is over 76 years old, and has been a beekeeper from his boyhood as was his father before him. Mr. Wall values this work very highly and it was with great difficulty he could be induced to run the risk of letting it go out of his hands.

The work was written by one J. L. Christ, a Lutheran divine of Rodheim, Germany, and contains a treatise or method by which any person can make $200.00 in one season, from twenty-five colonies of bees; an amount seemingly small but when we consider how far a dollar would go in Germany especially in those olden times, it was a fair return for the capital invested.

While this work presents what we of to-day would consider the crude ideas of "ye olden times," yet we shall find in its teachings the groundwork or foundation of many of our advanced ideas of the management of bees. We are having this work translated into English, and propose to publish it in the Apiculturist, beginning in the next number, and can promise our readers a rich treat.

THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

The association met in the City Hall, Toronto, Ont., Tuesday, Sept. 18, 1883, the President, D. A. Jones in the Chair. As the Secretary, Mr. A. I. Root of Medina, Ohio, had not arrived, the meeting, after the reading of the reports of the Vice Presidents, assumed the character of a social gathering of beekeepers from every quarter of the United States and Canada. We have only room to give the reports of the Vice Presidents and President's address, as taken from the A. B. J.

The first report was from Dr. Miller, of Illinois. The season in that state, he said, was unfavorable. Even when white clover came, the bees lacked energy to go out and gather honey. Those who had fed bees during the winter did very well. The flow of honey from clover closed up earlier than usual, and since then they had none. About three-quarters of a crop had been obtained.

Dr. J. P. H. Brown, of Augusta, Ga., gave a fairly favorable report. The last report of the Commissioner of Agriculture in this state showed a product of only 27 pounds per colony. The horsemint, on which they depended largely, yielded not a single drop of honey, so far as he knew. A succession of heavy frosts in April had killed the bloom. The honey in Georgia generally was of amber color, and, for some reason which he did not quite understand, it was a few shades lighter this year than usual.

Judge Andrews, of Texas, stated that in north Texas the crop was very light, not more than 10 pounds per colony, but the honey was of very superior quality. It was obtained chiefly from rattan and honey locust, which came into bloom early in May. During the horsemint season (that plant yielded little or nothing) there was the most intense excitement among the bees if the hives were opened, or any attempt made to take the honey. In middle Texas there had been on the whole a good flow—a finer crop he had never seen. In west Texas the country had been settled for only three or four years, and few bees were kept.

Mr. O. O. Poppleton reported for Iowa. The yield of white clover honey in that state was heavy, but since that, there had been nothing. This was the worst season for robbers he had ever known.

Mr. Hart, of Florida, gave a very interesting report of bee matters in his state. The yield was an average one, but was from rather different resources than usual. Some of the bees swarmed as early as the sixteenth of

February. In March came a drought, and the honey flow ceased almost entirely. In May the bees began to gather from the palmetto, bay and mulberry, but the crop from the last-named was very small. The bees in the coast counties took large quantities from the black mangrove which grows along the shore, and the roots of which are covered at high water.

Professor Cook, of Michigan, reported that so far as he could learn, Michigan had got only half a crop. About 50 or 60 pounds per colony would be a fair average, of which one-third was comb honey. The season in the early part of the year was very rainy and very cold, but notwithstanding this the bees were very busy.

Mr. Jones—Have you many Canadian thistles?

Professor Cook—I am glad to say we have very few. There was a droughty fall, and it seemed there could be no more honey, but still the bees worked hard, and now, even though the frost had come upon them, the honey continued to come in.

Mr. W. C. Pelham, of Kentucky, reported on behalf of his state. The yield, he said, was much above the average in the white clover region, but in the mountainous region of the state, it was rather above the average.

Mr. Porter, of Colorado, reported about an average yield, notwithstanding that the spring was unfavorable. About a hundred pounds to the colony would be about the figure. A letter was read from J. L. Peabody, of Colorado, reporting only half a crop. They had snow in June, and frost in July and August. The Rocky Mountain bee plant had come along well in the dry, sandy soil, and the bees got a good harvest from it.

Mr. C. F. Muth, of Ohio, reported fully an average crop, partly from the locust, but mainly from the white clover. About 130 pounds per colony would be an average. After clover was over, the bees produced no more, in fact, they lost stores. His own bees had not stores enough to winter on, but in the few bright days after the recent frost, they had resumed work. He was sorry to say that honey had been forced upon the market in Cincinnati. He had been offered the best clover honey at 8 cents, or 8½ cents a pound. He had advised the bee-keepers to hold their stocks until the prices got better.

Mr. McKnight, of Owen Sound, President of the Ontario Beekeepers' Association, was called upon to report for Ontario. He cordially welcomed the representatives from a distance. The Ontario Association had been in existence only three years. He explained the system used by the Association in securing statistics, which was to send to members of the Association slips with questions regarding the mortality of bees, increase, crop, etc. This year 48 ont of 84 members reported. These reports showed a total yield of 211,772 pounds, an average of 106 pounds per colony. The average yield for the three years was 66 pounds per colony. The season this year was a strange one, the spring was backward, but on the other hand, the fall continued three weeks longer, making up for that to some extent. The principal sources of supply were the white clover, basswood, and Canada thistles. Among advanced beekeepers there was very little outside wintering.

Mr. Vandervort, of Pennsylvania, said he always found it hard to get reports. When there was a bad season beekeepers were too busy to report. The early spring was favorable, but later, the season was wet, and prevented the bees from working. There was only a half crop of honey, but a fair average of increase.

James D. Long, of Granby, supplied the report from Quebec. There had been a yield of fully 100 pounds per colony.

Rev. W. F. Clarke reported for Manitoba. Before doing so, he desired, as perhaps the only one from Canada who had been present at the foundation of the Association, to express the pleasure it gave him to welcome the delegates to Canadian soil. He had learned since leaving that a few colonies of bees had been kept in the old settlement of St. Boniface, but had not known anything of them while there. He had seen only one bee while there, a stray Italian who had come from California in a box of fruit. The old friend of the Association, Mr. Wallbridge, was now Chief Justice of Manitoba, and resident in Winnipeg. He had had several "conventions" with the Chief Justice, and in company with him had examined the flora of the country. He had never seen such a magnificent yield of white clover, and was sure the bees would do well on it. Chief Jus-

tice Wallbridge was strongly of the opinion that the steadiness of the climate would be favorable to wintering bees, and he intended to enter upon the practical work of beekeeping.

PRESIDENT'S ADDRESS.

At the request of President Jones, Mr. McKnight, of Owen Sound, President of the Ontario Association, read the President's address as follows:

It affords me genuine pleasure to meet with you all in this our usual annual gathering — pleasure for more reasons than one. I am pleased to meet with our American friends, who have honored Canada, and honored Toronto by choosing this as the place of meeting of the National Association. True, it is a "National" Association, but the representation from Canada is usually so small, we had scarcely the right to expect, much less enjoy, the pleasure of having Canada chosen as the place of meeting. I am pleased, because our own Canadian Association has turned out in such force to welcome our American brethren.

I am also pleased and proud to have, what has always seemed to me, one of the things I most desired, and I am sure I only speak the mind and express the feelings of all our Canadian brethren, when I say that they have long wished for a chance to welcome to Canada's shores the "Father of Beekeepers," the great "Huber of America," our venerable friend and brother, Rev. L. L. Langstroth.

Last winter was an unusually severe one to beekeepers, but it was severe (with few exceptions) only to those who did not take the proper precautions in preparing for winter, at least so it has been with Canadian beekeepers. I venture the assertion that much more care will be taken this fall to prepare for the coming winter. The spring came upon us unusually cold and wet, and this state of affairs was prolonged until nearly the first of June. Had the season opened as the majority of seasons do, many colonies would have escaped and come through all safe, though then very weak, but the cold and backward season completed the work which the careless beekeeper began, and these colonies became victims of "spring dwindling." When the season came upon us, the majority were not ready to reap the harvest. The flow at first was only sufficient to supply material for a genuine "swarming fever," and I opine that many allowed too great a number of swarms. Only last week I received a report from one beekeeper who had one colony in the spring, but who has no less than 15 — an increase of 14. While the other honey-bearing sources supplied a fair proportion of the flow, still, to Canadian thistles, Canadians are indebted for the great majority of the crop of 1883. Bokhara clover has also done well, and I am of the opinion that it will become one of the future staple honey plants of the country.

On the whole, our beloved pursuit is in a most prosperous and happy condition. During the past season giant strides have been made in apiculture, both in the improved method of manipulation, and in the advanced ideas with regard to placing the products of the hive in a pleasing and salable shape before the people.

We may ascribe the success and advancement so obtained, in part, to the able manner in which all the subjects which tend to this advancement are handled by able and energetic writers in the many journals which the public have the benefit of perusing at a small cost, and which are constantly disseminating useful knowledge on matters interesting to beekeepers. Conventions, such as this, have much to do with its advancement, as it is at these meetings that we learn from each other what each one of us has been doing during the past year, and by thoroughly discussing the various thoughts and experiences which are advanced, we are enabled thereby to arrive at correct conclusions regarding many questions which have held doubtful prominence in our minds until substantiated by like experiences from others.

Honey shows are likewise a great item in giving apiculture a helping impetus. I feel that it is the duty of every beekeeper to take his entire crop to these places, whether the prizes are large or not, and when once the beekeepers make the "Honey Department" one of the leading attractions of the Fair, the Agricultural and other societies will not long lie dormant in the matter, but each will vie with the other in trying to see which will have the greatest attractions in our department.

I cannot close without mentioning the honored dead — of such men as Wagner, Quinby, Colvin, Grimm, and a host of others who have gone before us and who have done so much for us. I must also refer regretfully to the

death of one of our number in the person of Theodore Houck, who has since we last met together departed this life.

It will soon be the duty of this Association to select another of their number to fill the position which I have so poorly occupied during the past year, and I feel that they will have little difficulty in selecting some one who will do the honors of the position much more efficiently than I have been able to perform them.

Before closing I must again thank our American friends for their presence in Canada. I feel that this session will prove one of exceeding benefit to us all in reaping a harvest rich in valuable information, and I trust that it may long be remembered as such.

QUESTIONS AND ANSWERS.

BY THE EDITOR.

1. During the fall season after the boxes have been removed, most beekeepers cover the tops of their brood-chambers (or frames) with enamelled or other cloth, through which there is no escape of moisture owing to their being coated with propolis. Now, should these cloths be changed for those more porous, at the time for placing the colonies in the cellar or bee-house, for winter? How if they remain on summer stands?

2 At what time should bees, to be wintered in the cellar or bee-house, be placed in winter quarters?

3. When placing bees in winter quarters (cellar or bee-house) how should the hives be arranged?

4. Quite frequently if proper precaution is not taken, the bees that die during winter fall at the entrances and clog them, thus stopping the ventilation. How do you arrange your hives so as to obviate this difficulty?

5. How do you arrange proper ventilation for the bee-house or cellar?

6. What do you consider to be the proper temperature for the cellar or bee-house during winter?

7. What packing do you consider necessary when wintering bees in the cellar? and what when they are wintered on summer stands?

ANSWERS BY D. A. JONES.

1. I exchange the cloths for those more porous, selecting those that are free from propolis and placing slats under them so as to keep the cloths from ½ to ¾ of an inch from the tops of the frames, and am very careful to see that the cloths fit closely so that no cold air can find an entrance and no heat can escape.

2. During the last sunshiny days in the fall.

3. I place the first row of hives on platforms at a short distance (10 to 12 inches) from the floor or ground and after these have been placed in position 6 inches apart, I take two strips one to two inches wide and place them on the top at rear and front of the hives; upon these, place another row so that the space between the hives in the second row will come over the centre of the hives in the first row, thus allowing a free circulation of air and the escape of moisture. I continue the above until all the hives are placed and am careful to have the stronger stocks in the bottom rows.

4. When placing the bees in the cellar I leave the entrance open across the whole front of the hive, and the ventilation through the porous cloth is generally sufficient, but when occasion requires I generally take a crooked wire and if the entrances are closed open them by raking out the dead bees.

5. To winter in the bee-house successfully the house should be so constructed that the inside temperature cannot be affected by the outside; and in order to accomplish this the walls should be packed tightly with two feet of dry sawdust or three feet of chaff, packing same thickness overhead, and having the bottom so protected that frost cannot penetrate. It should have a ventilating tube at the top, of not less than one square inch to each colony of bees. It should have a sub-earth ventilation by means of a tube laid below the depth to which frost will penetrate, and from one to three hundred feet in length, coming in contact with outside atmosphere at the other end. As the air passes through this tube it is tempered by the distance which it passes through the earth, and comes into the house at an even temperature. It also allows foul air to escape. By means of slides in these ventilators, the temperature can be arranged in the bee house, in which

it should stand at from 43 to 46 degrees, and in *no* case should it fall lower than 42 degrees. If constructed in this way, it will not change its temperature more than from one to three degrees during the winter. Have tight fitting triple doors, making two dead air spaces.

6. Two thermometers should be placed in every bee-house or cellar, one opposite the bottom and the other opposite the top row of hives, the former indicating 43 and the latter 46 degrees.

7. None other than the cushions in the cellar and bee-house, and for those on summer stands use fine dry sawdust.

Beeton, Ont.

ANSWERS BY PROF. J. HASBROUCK.

1. In wintering bees out-of-doors, I want the top of the nest just as tight as it can be made. The more enamelled cloth and propolis the better, if they are well put on. I do not want the moisture, and the warm air which carries it, to go out that way. I am very decided about this, because I have taken a great deal of trouble to find out the effect of upward ventilation, and I know it is evil and that continually. When the enamelled cloth is covered by non-conductors and the sides are similarly protected, so that the moisture is not condensed against them, I find that it gets out at the entrance with sufficient rapidity to cause no trouble. I am satisfied, moreover, that bees winter best, if there is a tight board cover immediately on top of the non-conductor over the frames. The reason for this is, I suppose, that this arrangement closes the top more tightly than otherwise. This is so different from the prevalent opinion that I must give a little of my experience in confirmation of my position. I began using movable frames in a "long idea" hive with no upper story. I used to put two thicknesses of woollen cloth over the propolized covering and down the sides of the frames, as they hung in the middle of the long box and the cover down on that. The bees always wintered finely, and I didn't know what dysentery and dwindling were. Afterward I put my bees all into chaff-hives, with upper stories and chaff cushions, and immediately I began to be plagued with all the "winter troubles" of which other people were continually talking. Last fall I began to think seriously of how much better "I used to do it," and I concluded to try the old methods on some new single walled hives, which I had made, containing L. frames. I put the woollen cloths over the top and a cover with a two inch rim coming tight down upon the cloths, and let them stand out-doors. They wintered strikingly better than the chaff-hives. If I ever winter those chaff-hives out-of-doors again, I should prefer a close fitting board tight down on some woollen cloths over the frames, instead of the chaff cushion. But if I could winter bees in-doors as safely always as I can by this arrangement, I would never again leave any out, and thus save the $1 a hive which out-door wintering costs extra. My personal experience in in-door wintering is limited, but I have had the opportunity of studying, for several years, the experiments of a friend who thinks he has brought wintering down to a fine art. From what I have observed, I think successful in-door wintering requires that all covering, unless it is quite "holy," should be removed from the tops of the frames, and that the entrances should be closed.

2. In this location, about Thanksgiving.

3. I would pile them up solid as high as convenient, setting a hive on top of the one below, with pieces of ¼ inch stuff between. The bees should nearly fill the room, so as to keep up the temperature in cold weather.

4. [Owing to a mistake in copying this question, it was not understood by Mr. H.—ED.]

5. I have a 7 inch pipe-hole near the top of my wintering cellar leading into a flue of the chimney which runs up three stories above, and warmed by another flue in the same chimney into which goes the pipe of a strong heater. I depend upon the air getting in through cracks. I found this ventilating "system" prepared for me, when I came to the house, but it is efficient; and something equivalent to it, I believe to be necessary for successful cellar wintering. In a very warm spell, I would open the doors at night.

6. 45° as nearly as possible, above rather than below. That is the temperature at which bees standing out begin to feel very sleepy, and yet a

little rise, as from the sun shining on the entrance, brings them out. It seems to me best to keep them just on that border line of unconsciousness, and yet not so torpid, but that they would rouse up and shift to "pastures new," if they find nothing but pollen within reach of their tongues. At this temperature the air must be kept lively by ventilation and then if their quarters are dark, they keep dry and easy, and undoubtedly consider the winter only a rather long, cool night.

No 7: answered in number 1.

Bound Brook, N. J.

ANSWERS BY GEO. W. HOUSE.

1. When the boxes are removed for the season, I cover the frames, either with a straw mat, or a piece of matting that comes around tea chests. When the boxes are removed from the hive, prepare the tops as you wish to have them during winter. Would give but little upward ventilation for cellar wintering.

2. About the middle of November, the hives should be placed in the cellar dry and clean, and the bees should have a good flight just before carrying them in the cellar or bee-house.

3. The bottom tier of hives should be placed about ten inches above the cellar bottom and this tier of hives should be raised from bottom board on ¾ in. blocks. On top of this tier pile up the hives as high as the cellar will admit; do not raise the hives from bottom boards but leave the whole summer entrances open. There should be a space of at least six inches between cellar walls and outside row of hives with entrances toward the centre of cellar. Arrange row around outside the double rows through centre, facing the hive from each other leaving narrow passage way every two rows.

4. If temperature is right in cellar there will be no trouble in this respect. In wintering out doors, we have our hives slant a little to the front and whenever the weather admits, that is, moderately warm, we rake the dead bees out with a heavy wire bent at right angles about three inches from the end. This is an important point in successful wintering.

5. No ventilation from outside. The impure air is carried off by a 3 in. tin pipe from top of cellar to outside, thence upward about 26 feet, or as high as the building.

6. From 55 to 60 degrees Fahrenheit. Damp cellars want higher temperature than warm and dry ones. I think our temperature is generally too low.

7. No packing is necessary when wintered in cellar. When wintered out doors the hive should be packed in chaff, straw or planers' shavings. The surplus chamber should also be packed with chaff about ⅔ full.

For covering over frames, I consider straw mats best. The covering that comes around chests of tea next best.

Fayetteville, N. Y.

ANSWERS BY W. MCKAY DOUGAN, M. D.

1. Before putting bees in the house or cellar to be wintered, the brood chambers should be covered with something that will absorb moisture and thus keep the bees dry. Two thicknesses of ordinary carpet, used instead of hive cover, serves an admirable purpose when wintering bees in the cellar here. If left on summer stands I like an upper story. This I fill with forest leaves and know that my bees will winter well if in a double-walled or chaff-hive.

2. During the first spell of freezing weather.

3. If room is an object they may be tied up; it matters little, however, how hives are arranged if the cellar or house is dark and properly ventilated.

4. Here we have no bee diseases, except dysentery from bad honey dew sometimes. When this trouble is feared we elevate the entrances or ventilate at tops of hives.

5. By means of flues, though a cellar within a cellar, like Mr. Schnider's, of Louisville, Kentucky, is, perhaps, the best of all.

6. From 40° to 45°.

7. If wintered in the cellar or on summer stands, no packing is necessary here except that stated in answer to No. 1.

Oklahoma Apiary, via Seneca, Mo.

ANSWERS BY G. W. DEMAREE.

1. After experimenting in this line for several years I now use the same quilts the year around. In this climate there is no need whatever of changing the quilts because they have become coated with propolis.

2. If the climate was the same all over the country, and just as it is in central Kentucky, I would answer "never."

3. I have to see the first bee hive—

inhabited by bees — in a cellar or bee house; but judging from what I have read on the subject of wintering bees in that way, the best plan would be to kill the poor bees in the fall—using the most merciful means possible to extinguish life — extract the honey from the combs, then "stack the hives up" in some dry airy place. The following spring you can purchase the bees from me with a small advance over the price of the honey you took from the hives. Whenever you have an excess of combs by following this system, I will take them as part pay for bees.

I recommend "simplicity" hives for "stacking up." Too serious for a joke, eh?"

4. All good colonies have no trouble to keep the hives clear of dead bees in our climate.

5. See No. 3 for answer.

6. Have no experience in that line.

7. All that is necessary in our climate is to see that each colony has 15 or 20 lbs. of stores, and that each hive has a good waterproof cover—the bees will take care of the balance. In all my experience I have never known a colony of bees to perish where they had plenty of stores and good dry quarters.

ANSWERS TO QUESTIONS IN AUG. NO. BY W. MCKAY DOUGAN.

1. Very favorable.

2. If possible work at least one season with some successful apiarist before embarking in the business alone.

3. By all means purchase strong colonies of black bees in box hives containing straight combs. Transfer them to movable comb hives and Cyprianize or Italianize. In this way the beginner will save money while getting needed experience.

4. A two-story chaff hive. It affords most protection from heat and cold, and has still other advantages not to be found in a single story.

5. A metal-cornered Root or Langstroth frame. Bees do not fasten metal corners to the rabbets in which they hang as they do all wood frames. After long and bitter opposition the merits of the Langstroth frame have given it a place in the apicultural world unknown to any other frame. More of these frames are now in use than there are of all others combined. Odd-sized frames are about as much of a nuisance in an apiary as box hives or "log gums." Bees sell more readily on Langstroth frames now than when on others. These are some of my reasons for preferring the Langstroth frame.

Seneca, Mo.

ANSWERS BY J. HEDDON TO QUESTIONS IN SEPT. NO. BY S. L. VAIL.

1. I think they would, when clustered in ten or more combs with only sufficient stores in the whole ten to last them; but if the same amount of honey was in five combs, no such mutilation need bother you from year to year.

2. In this location, and I think in most locations, early stimulated breeding does not pay. I want no breeding earlier than the advent of natural pollen *especially* no excessive breeding.

3. Now you have "catched" me. I cannot do more than give my prejudice formed by observation and experience and some doubtful experiments. I should *prefer* quilts with cushions of packing in some form. I would rather have a tight sealed cover, than simply a cloth. Bees *will* have the dysentery, however, with any of these fixtures, if they have the cause of it at hand. This I *know* by actual experience.

Dowagiac, Mich.

LETTER BOX.

Christiansburg, Ky. Oct., 1, 1883.

DEAR EDITOR: The early honey season in this state was as good as one could possibly desire it to be. I said jestingly at our state convention that I believed my bees would not have brought in nectar any faster than they did from the white and red clover, if a river of honey had been flowing by my apiary. A brother beekeeper remarked that he believed that I might have made the remark in good earnest and not varied from the truth. I am not certain that my bees at that time would have stopped to interview even a mighty river of honey. I made a practice of taking off cases of honey and just placing them anywhere, on a hive or on the ground in the shade for the bees to leave them and return home. I frequently saw bees stealing propolis from cases, in but a few inches of open cells of the most tempting looking honey without taking a sip from them, or noticing the honey at all. The weather during the month of August, and early part of September being very dry, our usual fall supply for winter stores is likely to be very short.

G. W. DEMAREE.

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BEE-CULTURE IN THE SOUTH.

BY G. W. DEMAREE.

VI.

THE cardinal principle of an apicultural education is the same everywhere, but the practical application of it must necessarily vary in exact proportion to the variation of climate and other causes which make locations differ so widely from each other. To illustrate: in a location like that of Mr. G. M. Doolittle's where the main surplus honey must come from the basswood or linden, which does not bloom in his climate until July, no great number of bees are necessary until then, but they must be got ready for the harvest or the whole season is lost. In my location we have a flow of honey from the locust which rivals that of the linden except that it is of shorter duration. As the locust with us opens its nectar-laden flowers about the tenth of May, our bees must be got ready for sharp quick work by that early period. Herein lies the secret of success. Each apiarist must study and fully understand his location and work square up to its requirements if he would obtain the best results. In this and articles which are to follow, I propose to give my method of managing an apiary for profit in my locality, and from my knowledge of other places I believe the same will answer with slight variations for Kentucky, Virginia, Tennessee, Missouri and all similar places. At this writing (Oct. 15) there has been no frost here to injure the tenderest plants. My sweet potato and tomato vines are now as fresh and tender as they were in the month of June. Nevertheless, as I prefer to do such work gradually rather than to have a wholesale disturbance all at once, I have commenced to prepare my bees for winter.

In prosecuting the work I use a tent to keep robbers at a distance. Each colony is carefully examined and if they have as many as eight out of the ten L. frames two-thirds full of sealed and unsealed stores,

I regard them as quite safe and remove all surplus if any, and confine the bees to the brood apartment by means of quilts made of rag carpeting or coarse coffee-bag material. This is all the protection necessary in our climate. I have tried chaff hives and other methods of protection thoroughly, and in every trial some single-wall unprotected hives would bring the bees through in better condition and have invariably cast the first swarms. The only genuine cases of dysentery I ever had in my apiary had for their direct cause damp, mouldy chaff cushions. Of course I speak in behalf of my own experience, in a climate where the average winter is "open" and much wet weather prevails. Farther north, where the air is cold and dry, the case is doubtless different. Still in my opinion more bees die in winter in the north from being "coddled" to death, than from all other causes put together. After my bees are prepared for winter as above stated, I let them severely alone except to watch the covers to the hives and see that they shed water perfectly. All hives that are not supplied with an abundance of stores are marked in order that they may not be forgotten. Such hives receive attention during moderate weather in February, and thence till fruit bloom.

As soon in the spring as pollen is to be obtained by the bees, say from the 20th of March to the first of April, I examine thoroughly every colony and if any are queenless I give them a frame of brood and let them rear a queen. Such colonies are but little, if any, behind other colonies. We generally have drones flying by the 15th of April. In the spring of 1882 I had a queen mated between the first and tenth of March. Very small nuclei can be safely wintered, but it is poor economy to do it unless to save valuable queens. Such small colonies consume a much greater proportion of stores than full colonies do. Another fact I feel inclined to mention in this connection, especially as I do not remember of ever seeing anything in print touching the subject, is, that it is impracticable to handle bees much when there is but little unsealed honey in the combs, as most colonies will bite the capping full of holes and thus waste their stores to no purpose. Therefore if it becomes necessary to hunt up queens or to perform any operation which requires a thorough overhauling of a colony at a time when the bees are getting nothing from the fields, it will pay to feed such colony a quart of liquid food the evening before they are to be handled the next morning.

Where a few colonies only are to be handled the loss on this account does not amount to much, but in a large apiary run for profit economy should be the watchword. I have never experienced any trouble on this account in the spring of the year, because if frequent handling does cause the bees to consume a larger quantity of honey, the honey is not lost, because it prepares the bees for rapid brood-rearing.

No feeding with us is necessary in the spring, unless the bees are scarce of stores, in which case they should be fed liberally till new honey begins to come in. I used to try to follow the directions of some who write a great deal about "equalizing brood" and "spreading brood" and such like, but I have learned better now. With good healthy queens our bees will "equalize" and spread their own brood amazingly fast without any such fussing. If I have weak colonies, however, I put in division boards during the early spring and help them along in this way till the weather becomes warm and settled, and then they are given full sway in the brood apartment.

Up to this point of time bee culture in the south is easy and fair sailing. But now comes the skilled work, for it depends on skill and good management as to whether we get a half or whole crop of surplus honey. I can now see how it once was with me. I would have my bees in good trim when the early harvest demanded laborers, and then only get a half crop of honey. The trouble was I lacked experience and fixedness of purpose. I manage things differently now. I take a practical look at matters in advance. Suppose my home market will take 1500 or 2000 pounds of comb, besides extracted honey, and this comb honey is consumed by laboring people. In what shape do they want it? Well, never in "fancy" shape. They want honey — not "fancy" — for their cash. Well, I produce this lot of honey in such size packages as those in which I can get the largest amount of good honey from the colonies set apart for that purpose. And after much experimenting in this line I have adopted six-pound packages. Don't cry out "fogy" till you hear the whole story which will be given in due time.

Well, the six-pound boxes must be ready and waiting.

As my home market has not yet been sufficiently developed to take all the comb honey I find it profitable to produce, I wish to hold on to my city trade, and for this purpose I produce my comb in one pound sections. And these must be on hand and ready at a moment's notice.

The balance of the crop will be extracted, and as this should always stand for a while in open vessels that the air may all escape and the evaporation be hastened, vessels for marketing can be obtained at the leisure of the producer.

Having made up my mind as to how much increase I want and provided the necessary hives and frames, and taken an inventory of surplus combs on hand, I am prepared to make out a bill for the amount of comb foundation I shall most likely need, and this I order early in the season before the press comes, and when it can be purchased at reasonable figures.

I find nothing that pays better than comb foundation both for brood combs and surplus honey, when used with proper judgment.

Having everything ready we can

afford to wait for the first lively rush of the bees which takes place with us about the tenth of May when the locust generally opens its flowers. As this early and copious flow of nectar takes place at a time when the brood combs have not been well filled with brood, it is rather a critical period with our bees, and requires good judgment to pilot them safely through it.

Christiansburg, Ky.

NOTES FROM OKLAHOMA APIARY.

By W. McKay Dougan.

II.

As my first paper was devoted chiefly to the country east of the ninety-sixth meridian in Indian Territory I will now write of the country west of said line. Along this meridian, river bottoms and, in some places, the adjacent bluffs, are well inhabited by wild bees. The Delaware Indians who are located here pay no attention to beekeeping, and it is rarely that a Cherokee in this section will hive a swarm of bees. The natives prefer felling timber containing bees and after taking their stores the bees are abandoned. Farming is done here on a small scale and bees are dependent upon wild flowers for honey, except once in a half dozen years, perhaps, when a sprinkling of honey-dew from aphides occurs.

Honey obtained from flowers here is possessed of a flavor that is almost intolerable, and hence beekeeping has no votaries "in this niche o' the woods." Thirty miles farther west bees do not now exist. We are now among "blanket" Indians, where, perhaps, the hum of the honey bee was never heard but once. This is not the home of even half-civilized people, and it is rarely that midnight's solemn hush is here disturbed except by the hoarse call of the horned owl, the scream of the panther or the howling of hungry wolves. Twelve years ago this was the feeding ground of thousands of buffalo, but none are within hundreds of miles. If absconding swarms of bees ever reach this section they perish so soon afterwards that they attract no attention. I have made frequent inquiries among the Osages and they have often told me that *Shawne-cah-heh* (honey makers) never come to this country. In the year 1872 I took some of friend Alley's "strain" of Italians to this isolated region where I kept them for years, but had to feed them all the year. I succeeded, however, in raising some of the purest and prettiest of queens, but being seventy-five miles from our post-office I had to abandon the project because it did not pay. West of this locality timber plays out, and bleaching buffalo bones, stone pens around dead Indians, and sand dunes, dot the landscape. We are now on the "plains" about which everybody has read; among mirages also,—but my letter is long enough and this is a good place at which to end my second letter.

Oklahoma Apiary, via Seneca, Mo., Oct. 7, 1883.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.[1]

By J. L. Christ.[2]

Introduction.[3]

In the great book of Nature, which teaches us the deep wisdom and power of God, the bees are surely not to occupy the last page. We find in the animal kingdom, and among the insects, many creatures endowed with wonderful skill and acting with an intelligence which we cannot fail to admire in the brute creation. How artistically does the beaver construct his dwelling, his storerooms and his closets! How artistically do they saw the trees with their teeth and build their dams, carrying the earth and clay on the abdomen of one whom four others drag along by his feet! How nicely the ant-lion makes a funnel to catch his prey! With what regularity the despised spider weaves her web and ties the invisible knots! And yet, the skilful actions of these and other animals and insects which we admire bear no comparison with the intelligence of the bees, where so many thousand members are united in one purpose and in such harmonious relation as, with these winged insects, to assume the form of a government.

The more we study the home of the bee, the more wonderful things we see in it. We find the deepest respect and love for the sovereign, the greatest interest for the advancement of her pleasure, a constant watchfulness to serve and protect her, a great love for their fatherland — here, too, we find the greatest harmony, an extraordinary eagerness for work, the greatest unselfishness, together with the greatest economy, the finest geometry and a fine judgment. The lover of nature will take pleasure in studying such a home where all is so neat so clever, so beautiful. Even if he has watched its inmates attentively for years, he discovers always something new and instructive. He will find so many things beyond his comprehension that he will not be surprised that so many bee-masters should differ in their views. Is not nature varied in her laws, and her ways past finding out?

Bonnet, the great naturalist, who is well known through his History of Insects, says: we must not think we have thoroughly studied the maxim of the wisdom of bees; we have only got as far in it as the A B C, because it is a deep science. We have not only the best guidance to virtue in the example of the bees, but they are often the cause for the deepest meditation. As soon as the bee is two or three days old, she understands as well as the old bee how to gather her honey and wax, to build her cell with mathematical precision, to guard the colony and to defend her fatherland. Yes, she knows how to help herself in cases which only occur perhaps in one of thousands of

[1] Translated from the German.

[2] Pastor of the Lutheran Church in Rodheim. Second enlarged and improved edition, printed at Frankfort and Leipzig, 1783.

[3] To first edition.

colonies and which evince a deep consideration and judgment. A few years ago, I let a large red snail creep into a glass bee-hive that was not quite filled with bees, so that I could observe everything. I saw immediately a great stir and tumult caused by the bees running up and down the panes of glass, and I was very anxious to see what they would do in this emergency. In the bee-hive the snail could not and should not stay; to carry her out was a burden too heavy for them and so impossible, and they could not depend upon my help. They could kill her with their stings, but the smell and evaporation would have been so harmful, that they would have been compelled to leave the hive, honey and brood and move away. But they were wiser than we would think, for they besieged the poor snail in such a manner that she could not stir or move in any way. Whether they had killed her I could not observe, for the large number of bees that were about her. They built a hill of wax over her and imprisoned her, which was all the work of two hours.

It is not to be wondered at that Aristomachus and Hylicus spent their whole lives in the study of the bees; the former studied fifty-eight years, the latter left the civilized world and sought the desert wilds that, undisturbed, he might watch them more closely. Beekeeping is not only an agreeable occupation, but it is useful as well. There is hardly a capital that yields as much interest as a well-managed apiary. Twenty-five good colonies average in a year from $50 to $100. I have had in many years, and in the last summer of 1778, which was very dry from the end of July and very bad for bees, such colonies, of which every one yielded over $10. From several colonies I have taken 12 lbs. of honey each and a young swarm from which in four weeks I took 7 lbs. of honey and 2¼ lbs. of wax. The old colony also gave me 2¾ lbs. of wax. And that is nothing remarkable. A single good, populous colony in a good hive will yield in a good bee year from twenty to twenty-five pounds of honey, which would have been the same last summer had the last half of it been as good as the first half till July. Notwithstanding the bees differ in quality and kind, so may one colony do extremely well this season, while the next may show results quite the reverse. At the same time, the very good ones make up for what the ordinary lose, and on the whole the profit is very good.

One ought to pay more attention to this branch of agriculture and not only for his own benefit, but also, where there is an opportunity, gain a capital for poor-houses and orphan homes, especially, as at first a large amount of money is not necessary for it; as everybody can make a beginning with eight or thirteen dollars, for what in five or six years, without the yearly profit (which I will count for the expenses of the hives and

houses) one is able to keep colonies for seventy-five dollars.

Athough there are bad years, when one can reap little or nothing, yet we must not lose courage. By clever managing of the bees, we may not only keep our capital and get some wax, but there are always more good bee seasons than the reverse. For thirty-eight years we have not had more than seven bad seasons. Those were the years 1740, 1751, 1756, 1763, 1768, 1770, 1771. In one place they have more rain than in another; in one part of the country the honey-dew is more abundant than in another; and in any case, a good bee-year retrieves much. Every region is not good for the keeping of bees; as, for example, the part of Hanau is especially good for beaver ground; but as the bees have spread a large table, and know how to gather food out of thousands of flowers and herbs, there is seldom a tract where you could not keep bees without profit. The surrounding country, for example, is not very profitable, although it has meadows and much foliage and many vetches grow here; but the woods are an hour's distance away, the bees find no *haide* and there is no poppy-seed, no hemp, no spring corn or rape-seed, very little winter crop or sweet naphew planted. Still the bees give a splendid profit most of the years. The less food the bees find in certain localities, the more people have to plan how to make beekeeping most profitable. Keeping them in common straw baskets would not amount to much in these parts, and in one bad year one would lose all his bees. The improved bee-hives are so much in favor by those who understand beekeeping that they would not exchange one of them for four made of straw. I found, too, that the storehouses made of straw were very inconvenient sometimes, and besides they deprived me of the pleasure of seeing their inhabitants and their operations.

I, therefore, several years ago invented wooden bee-hives,[4] in which each section does not hold more than four pounds. They are supplied with a glass window, and besides being pretty they are cheaper than the straw ones and last ten times longer. These pleasant hives have not only taught me how to manipulate the bees with more freedom, but are practicable in many other ways; and all my friends, who are interested in bees, and had adopted this plan, found them so profitable that they did not want any other. I have shown their use and preference for all other kinds and they have proved to be acceptable. My management of the bees to get the most profit

[4] It was an original and practical invention as I never had seen or read of such a hive before. Several years afterwards, I read something of similar beehives, the same as Mr. Palteau's in France and the Vicatische, which Schirach describes in his universal "Bee Father," with a cover or box, which mine do not need, and which are arranged far more conveniently for the bees and the beekeeper. It is possible, that one or the other has thought of the same kind of beehives, and have tried them in distant parts of the country; but the great usefulness and the improved arrangement of those have never been known fully, and have never been ascertained by experiment.

out of them is not artificial but natural, simple and easy.

In physical quarrels about bees, I am at present not engaged, but the little that is said about it in this preface, I say to those who have read little or nothing concerning it. I have now only the practical point in view; how to make the most money out of it, and shall tell more later on about the wild bees[5] which carry in a great deal and the study of which will give us much information touching the important republic of the noble bee as well as varied enjoyment to the lover of nature.

Without experience, I would not undertake to write this book. Would it be possible to be convinced as surely and entirely of everything as of the undoubted usefulness in the management of the bee as I describe it here, which shows that not only my experience but that of others also is true, we should not doubt anything else. Even the best bee-masters could not refuse their assent, even though they had, according to the state of their parts of the country, a different kind of hive, and in many respects a different treatment of the bees. I have examined the best foreign kinds, but none are better adapted to all regions than mine. Among the foreign, I have found the Swedish and the Swiss management excellent which I will describe in the next part.

(*To be continued.*)

[5] I understand by wild bees not the common bees, which are found in woods in trees, as in Poland, Russia, and which are known as wild bees, but are natives (domestic), and which in the main are treated the same as those in gardens and in hives, but the wild bees are of a very different race and colour, and vary in size from a very small fly to the large black drone. They are organized differently from the noble bees, their colonies differ in many ways and no species live together in such large numbers as these. I have spent a great deal of time and attention in their study and if I am successful in my other observations, I will, when I describe them, picture every kind exactly as in life.

EDITORIAL.

In view of the fact that large numbers of persons who are now engaged in beekeeping are novices, and to whom even the simplest directions for the management of the apiary are new and instructive, it may be well to devote our editorial this month to such advice as will be beneficial to them. In all our acquaintance with a number of vocations we have failed to find one other than beekeeping which demands a greater diversity of talent or closer application.

To succeed as an apiarist one must be especially adapted for the business. To demonstrate this we need but look at the comparatively small number of successful beekeepers as compared with those who each year embark in the business. This is due in a great measure to the fact that those who have supplies for sale are not careful enough in pointing out the dark side of the question and in instructing the novice in the requirements which go to prepare one for successful beekeeping.

How often it has been stated

that you have but to spend a few months with some successful practical apiarist to fit you to care for an apiary. Those who have toiled for years and whose names are known all over the country as successful apiarists, will bear me out in saying that while it will pay any new beginner to spend a summer with some practical beemaster, yet this is but the beginning of their education, and that they have more than one season's hard practical study before them ere they will have become experts.

To-day there is too much of this rapid growth, and the result is that almost every vocation in life is overcrowded and injured because of the lack of a proper education. We are all in such a hurry to get rich or complete our education that we forget to work patiently, mastering the smaller details; and in consequence of this, making repeated failures until we have lost more time and money than those who commenced right, and patiently and persistently worked their way along, growing with their business and taking but few back steps. It is imperative that the novice become familiar with the experiences of those who have made beekeeping a success, and this is only obtained through our bee literature.

It will be well, now that our pets are snugly packed away for a winter's repose, to devote many of the spare hours of the coming months in studying some sound practical works on bee culture, and here let us say that you will obtain the most valuable information from reading works written by practical beekeepers and those who have made practical beekeeping a success.

Again, it is quite advantageous to look back over the results of our last season's work, and see if we cannot improve some of our practices. Too often we forget that the small things are the most important part of the season's work, and that careless or forgetful neglect of these "small things" will result in ultimate failure. Whenever it is found necessary to do any certain thing, do it at once, never leaving it for a better opportunity; the neglect of a single day may cost us the loss of a whole flow of honey.

While it is very essential that we have good hives and good implements, yet it is quite as important that we know how to use them.

The coming months should be devoted largely to preparing our hives, frames, sections, etc., for another season, and never leave the purchasing of supplies until you need them, or until the supply dealers are overrun with orders, so that you are obliged to wait and then as a consequence are compelled to engage in work which should have been done in the winter, thus neglecting work in the apiary. As we have been engaged in the supply business we know the importance of this advice. Whenever possible attend some good beekeepers' convention and have a good talk with the practical beekeepers there assembled; it will

do you good and cannot fail to give you some good ideas, and above all remember that system and application in conducting the work in your apiaries are the guide-boards to success.

CORRESPONDENCE.

Mr. Editor:

Your device of questions and compared answers is a great invention — a real stroke of genius — no less an idea than has often won battles, or made fortunes. It ought to be enough in itself to insure the success of your enterprise. It is the best plan ever thought of for settling some of the open questions in beekeeping, and of helping us all to arrive at what is truth in theory and perfection in management. I gladly acknowledge already my great indebtedness to this part of the Apiculturist, and would like to increase it by getting answers to some questions over which I have puzzled considerably. First, will Mr. L. C. Root oblige me by explaining how it is, that, as he says in his book, he finds it advantageous to change sections from the top to the side of the brood nest, to have them capped; while the rest of us, who sometimes use side-boxes, have to change them above to get them capped quickly? Next, will Mr. Alley please stand up and explain, what seems to him to be sufficient evidence that, when he finds a queen balled by her own bees, there are fertile workers in the hive? Then will Mr. Geo. W. House please tell us how he would explain how I came to have fertile workers in five or six nuclei the last season, when, according to my record, queen cells were torn down not earlier, in any case, than the ninth day after the queen was removed?

Again on page 515, A. B. J., of October 17, 1883, there seems to be a reliable record of fertile workers following the loss of a virgin queen. Now will Mr. House explain this on his theory? I believe this matter of fertile workers is one of the most important that awaits settlement, so that we may know just what conditions are necessary to produce them, and how to prevent their annoyance, and I believe Mr. House is on the right track; but yet what I have observed seems to be against his conclusions, and if Mr. Marhard's facts are correct, I shall be obliged to propose an amendment to Mr. House.

I have some more questions, which will keep until some future time.

J. Hasbrouck.

Lansing, Mich., Oct. 14, 1883.

Dear Mr. Editor:— May I ask you to call special attention to the next annual meeting to be held in Flint, Dec. 6 and 7, of the Michigan Beekeepers' Association. We expect to have by far the best meeting ever held in the State. It is expected that the Rev. L L. Langstroth will be present. To see and hear him will pay any one for the trouble and expense incident to the journey. We also expect D. A. Jones, A. I. Root, C. F. Muth, and hope to have C. C. Miller and T. G. Newman. From what I hear, Michigan beekeepers are to be out in force. Hotel rates are to be $1.00 a day. Further particulars as to program will be given soon. We expect to get reduced rates on the railroads. To aid in this, and that I may know

how many certificates on railroads to ask for, will every one in this or other States who expect to come drop me a card at once to that effect?

A. J. Cook, *President.*

EXCHANGES.

A new Insect Pest on the Basswood, by Prof. A. J. Cook. — A few days since my little boy came to me and said, "O papa! There is a new insect working on the

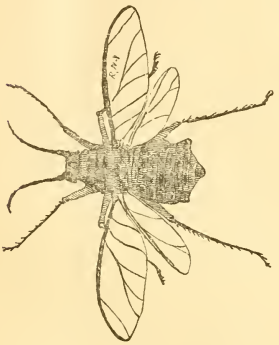

Fig. 1.

basswood. It is a plant louse and a regular Jumbo!"

Whatever strikes at the basswood aims a blow at apiculture and so is the enemy of the bee-keeper. It surely will be interesting to know this new enemy, that we may strike back whenever it attacks. Two years ago I saw a basswood, the branches of which were dying from an attack by this same insect. I procured specimens, applied a remedy and had the satisfaction of seeing the enemy wholly vanquished. Last year I sought far and wide, but could find no trace of this pest. This year I have received it from Wisconsin with the report that it is doing serious damage to the American lindens.

NATURAL HISTORY.

The word Jumbo applies well to these lice. They are very large for plant lice. The winged ovoviparous forms (fig. 1) are, contrary to what is usually true, even more

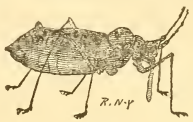

Fig. 2.

numerous than are the apterous ones (fig. 2). Those with wings are about one centimetre (7–16 of an inch) long to the tip of the wings. The body is about five millimetres (7–32 of an inch) long. The antennæ (fig. 3) are nearly as long as the body, and the legs nearly twice as long. The wings expand fully sixteen millimetres, or nearly three-fourths of an inch. The head, antennæ, eyes, thorax, wings and certain spots on the abdomen are black. The remainder of the body is covered with a whitish bloom. The base of the wings and the femora are yellowish-brown. The other portions of the legs are black. On the back are four rows of black spots. The two

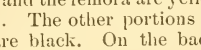

Fig. 3.

more central rows show eight spots each. These spots are subrectangular, and show a tendency to run together. The lateral rows contain five spots each. The posterior spot is large and is really an abortive nectar tube. The spiracles are also black. The antennæ are seven-jointed and quite hairy. The beak is strong and prominent.

The lice are wont to congregate on the under side of the branches, and, as my little boy remarked, are in columns as if ready to march. It is not uncommon to find them scattered about on the leaves and green stems. Figures 1, 2, and 3, drawn by one of my students, Mr. G. W. Park, show very accurately the form and markings of these giant lice.

As will be seen from the above description, these lice agree closely with Harris's *Lachnus caryæ*. It seems more than likely that this is the same species, which for some reason has changed its food plant.

REMEDIES.

I found, two years ago, that throwing strong lye by the use of Whitman's Fountain pump, upon the branches where the lice were clustered, killed them speedily. A strong tobacco decoction is also fatal to the lice. Tobacco smoke puffed upon the lice by means of a common bee-smoker causes them to drop to the ground, from which they seem unable to rise. I am also trying carbolic acid and kerosene oil with every indication of success. To make these compounds I use a quart of soft soap, to which I add a gallon of water. These are heated to the boiling point, then removed from the fire, when I add a pint of kerosene or crude carbolic acid. These are afterwards diluted by adding from twenty-five to fifty parts of water, as the tree will bear. If too strong, the foliage will be injured. I have used these mixtures on plant lice of other species for several years with gratifying success.

Fig. 1 shows the winged female, fig. 2 gives a view of the apterous louse, and fig. 3 a view of the antennæ. *Rural New Yorker.*

NOTES AND QUERIES.

Chambers Journal for September 1st gives the following interesting note: "A volume has just been published by the Indian government, on the subject of bee-keeping in India, from which it appears that, for some reason or another, bee-hives are almost unknown in that country. The people over the greater part of the land are content with the impure honey afforded by the wild varieties of bee, and make no effort whatever to improve the yield and quality of the product by careful cultivation. But Cashmere and its neighborhood must be mentioned as an exception to the general rule, for her bee-culture is carried to great perfection, and the simple way in which the hives are contrived and the honey gathered might even be imitated with advantage here at home. As each house is built, spaces are left in the walls of about 14 inches in diameter and two feet deep—the usual thickness of the walls. Each of these cavities is lined with a mixture of mortar, clay, and chopped straw, and is closed at the end with a flat tile, which can be easily removed from the inside of the house. This is done by the householder when the time comes for removing the honey, the tile being manipulated with one hand, while the other is engaged in holding a wisp of smouldering straw, whose smoke is blown through the hive. The bees thereupon leave their home until the operation is over. The same colonies occupy the same hives generation after generation, and the honey obtained is said to be equal to that produced in any other part of the world."

We have just received a fine photograph of the Rev. L. L. Langstroth taken while at Toronto, and we take great pleasure in stating

that we have now completed arrangements with him so that we shall be able to give the readers of the American Apiculturist, in the January number, a fine engraving taken from this photograph together with a sketch of Mr. Langstroth's history as an apiarist, and we can promise our readers that this will be a rich treat.

We would request the secretaries of the various beekeepers' Associations to keep us posted regarding the notices of the meetings of the association which they represent, together with any valuable information regarding the actions of said associations.

We have just been favored with a visit from Mr. L. C. Root of Mohawk, New York, and you may be assured that we held a busy bee chat while he was here. It is certainly a pleasure to converse with one who not only has been the constant companion and pupil of Father Quinby, but who is also one of the few successful beekeepers. During our conversation, Mr. R—— said that quite frequently he had noticed during an abundant flow of honey, and when the bees were returning to the hives heavily laden, the larger portion of them would enter the hives nearest the field from which the honey was taken even though they entered the wrong hives, the bees paying but little attention to them when loaded, while if the same bees should make the attempt when unloaded they would be killed. This fact may not be new to all but may be of interest to the novice. After visiting Salem we went to Wenham to see friend Alley, and our visit was a most pleasant one. Our only regret was that his visit was not a longer one.

Friend Alley sends us the following offer to new subscribers:

To every person who will send $1.00 for one year's subscription for the American Apiculturist, I will send one of my best queens, provided they remit to me $1.00 more on receipt of queen, the usual price of such queen being $2.00.

We hope that those of our friends who wish that a journal of the character of the Apiculturist shall live will take hold earnestly and see what they can do towards inducing their friends to subscribe. We have made some first-class offers to those who will get up clubs. We are ready and willing to send you all the sample copies that you will need. Please see what you can do for us. We need your help and trust that you will assist us all that you can in the good work.

We have received two numbers of a new French journal, "Le Conservateur des Abeilles," edited by Mons. A. Fournier, and published, at 27 rue Vandamme, Paris, at 3½ francs per year.

As it represents the most advanced and progressive apiarists of France, we commend it to the thoughtful attention of all our readers as an interesting and instructive journal.

We have been obliged to defer the report of several conventions until next month for want of space.

THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

[*Continued.*]

AFTERNOON SESSION.

Tuesday, Sept. 18., 1883.

A large number convened in the afternoon, when it was thought advisable to discuss miscellaneous ques-

tions, pending the arrival of the Secretary, and other expected members of the Association. The first asked was the most desirable thickness of comb foundation for section boxes. Prof. Cook, Dr. Miller, Messrs. Vandervoort, Taylor, Jones, and several others gave their views, which were pretty unanimous as to about 7 square feet per pound being the most desirable size. "What is the cause of fertile workers being developed?" was next discussed, and some difference of opinion made it lively. Prof. Cook thought the desire for eggs in the absence of a queen, stimulated the laying propensity in the workers. Dr. Brown was of the opinion that food had much to do with the matter, and read a brief paper giving his observations concerning fertile workers for two or three years past, confirmatory of that opinion.

President Jones said, he had seen abundant proof in his apiary, that feeding had nothing whatever to do with developing the laying instinct in workers. After a free interchange of opinions the subject was dropped, whereupon the question of bee forage was introduced. This created much interest, many of the members present giving their observation and experience in relation to honey-producing plants. The general feeling seemed to be that this matter was one of great practical importance, to which bee-keepers must give more attention hereafter. The next question propounded was, "What precautions are necessary to prevent young queens mistaking their hives on returning from their bridal tour?" Dr. Andrews would set his hives at varying angles. President Jones thought no precautions were necessary provided the hives were not too close to each other. They should be fully six feet apart. One member suggested the use of a narrow board in front of hives, from which young queens might issue. "What is the most desirable width for section boxes?" was the next question. Mr. Pettit said the best comb honey at the Toronto Exhibition was in sections about an inch and a half in width. The President and a number of the members of the Northeastern Bee-Keepers having entered the meeting, they were introduced by the President, and asked to participate freely in the discussions. The subject of sections was then resumed and took a wide latitude, including the question of separators, the comparative advantage of half-pound and one-pound sections, and the demands of the market. Mr. Muth went strongly against the half-pound sections, which he thought were ridiculously small. Speaking as a dealer, there was no demand for any thing so small. Prof. Cook rather mildly defended the half-pound section, and referred to Mr. Heddon's experience with it, and especially to his doing without separators. Dr. Miller had been experimenting with the half-pound sections without separators, but had been troubled with irregularity of building to an extent that interfered with packing. Mr Pringle thought it advisable to have sections of different sizes to meet the varied demands of the market. Several others took part in the discussion, and the weight of opinion was evidently on the side of one and two-pound sections.

At this stage of the meeting, Mr. A. I. Root arrived, and a resolution was adopted arranging for a visit to the Exhibition early to-morrow morning, when the meeting adjourned until 7.30 p. m., to give opportunity for the enrollment of members and payment of annual subscriptions.

EVENING SESSION.

The Association resumed business about 8 p. m., with greatly increased attendance. Prof. Cook, at the request of President Jones, exhibited and explained the use of a brush devised by T. J. Cook, of New Point, Ind., for brushing bees off combs. The Professor prefaced his remarks by stating that the inventor of this brush was no relation of his, and that he had no interest in the matter, except to call the attention of bee-keepers to what was a much better device than a goose feather, bunch of grass, or asparagus, for brushing off bees. Three samples had been sent to the Convention, and were on the table for inspection. Having used the brush with much satisfaction, he was pleased to recommend it to other beekeepers. Dr. Miller and Mr. Corneil joined in the recommendation.

The discussion of questions was then resumed by considering the best method of getting the bees out of section boxes, at the close of the honey season. Dr Miller's plan was to raise the section case a little, lay a cloth between it and the hive, leaving one corner open so that the bees can go

down into the body of the hive during the night which they will do if the cover is left off the hive. Then remove the section case in the early morning. Mr. Bacon practised taking the sections into a room and leaving the window open, so that the bees could return to their hive.

The subject of curing or evaporating extracted honey was next taken up. Mr. Poppleton, being called upon, said he lived in a dry climate where no particular means were needed, but farther South precautions must be taken or honey would become sour. He was of opinion that the sun was the best evaporating agent, when it was necessary to do anything with that object in view. Mr. Corneil was of opinion that the first point to settle was whether the honey needed evaporation. If it did, he, too, was of the opinion that the sun was the best agent for doing it. Mr. A. I. Root gave a very full account of his experience with different qualities and varying thickness of honey. Mr. McKnight confirmed Mr. Root's testimony, and said that a lot of honey stored in a tank had become so watery on top that some of his family suspected that the honey had been stolen, and water added. He knew better, as some of the honey had been gathered in a rainy time. A number of testimonies were given, all going to show the impolicy of putting unripe honey on the market. This topic branched out into a discussion of candied honey, and the best means of re-liquefying it, and a variety of other details. A question was now raised which excited a lively expression of opinion and illustrated the maxim that "doctors differ." It was "If I have 100 colonies, spring count, and wish to increase to 150, shall I do best to make the increase before the honey harvest, during the honey harvest, or at the close of the honey harvest?"

Prof. Cook replied, "Before if possible; if not, afterwards; during, never." Dr. Miller said, "During, always," and there was a running fire of opinions *pro* and *con*, which, at last, settled down to a good discussion on the point; Mr. Poppleton apparently carrying the day by contending that increase should be carried on from early spring, right along, and be completed by the end of the honey harvest. The subject of tiering up sections was next discussed, whether it should be done under or on top. Strange to say, both methods had its advocates. Mr. Hall, the largest producer of comb honey in Ontario, puts the empty sections on top. Dr. Miller had come to the same view. At this juncture, Mr. Heddon was greatly needed, but was not forthcoming.

The comparative advantage of one and two story hives for extracting honey was then brought up by a question. In the course of the discussion, speakers branched out into a general statement of experience with hives, and a mixing up of extracted and comb productions in a somewhat confusing manner. The question which is the best material for spreading in front of bee hives led to a variety of opinions. Some one said, "Mr. Root recommends sawdust." Mr. R. replied, "I once did but I do not now. I find the best material to be a foundation of cinder, and a thin coating of the whitest sand on top." President Jones recommended leached ashes. A member said it created too rank a growth of grass and weeds. Another member suggested salt.

At this stage, Dr. Miller offered a a resolution that the editors of bee periodicals be requested to encourage correspondents to append to their signatures a statement of the number of colonies owned by them in the spring, and the number owned at the time of wintering. The resolution was hurriedly put and declared carried without opportunity of discussion.

The President then informed the meeting that Rev. L. L. Langstroth had arrived, was at the Queen's Hotel, and would join the party tomorrow morning for the Exhibition grounds. The meeting then adjourned.

SECOND DAY.

Pursuant to resolution adopted yesterday, the members of the Association took steamer for the Exhibition grounds, about three miles from the city to see, first of all, the honey show, and then any other objects of interest which had special attractions for them. It may be observed that a great Industrial Exhibition lasting two weeks is now in progress, and the honey show is one of its departments.

It is held in a building about 40x120, which is entirely devoted to this purpose, and is filled from end to end with the finest display of honey ever collected on this Continent. A little detail will give some idea of the scene.

D. A. Jones, of Beeton, has, of course, the largest exhibit. At one end of the building, he has a pyramid of cans, ranging from two ounces to five pounds in capacity, the whole forming a little mountain of honey, 41 feet 6 inches in length by 14 feet in breadth, and towering far above the heads of visitors. In the centre of the building a cone of smaller circumference, but rising to a greater height, is similarly constructed. Above this pyramid floats a variety of flags, and above all the porcelain globe of a powerful electric light spreads at night the brightness of noonday over the whole interior of the building. Great boxes of honey are piled against the wall, and over them, and on the floor are 80 barrels in all of the luscious liquid.

In all, Mr. Jones has about 50,000 pounds of honey in the building. Mr. Hall of Woodstock, Ont., is the next largest exhibitor, and shows an imposing array of white combs rising far upwards, and varied at every 2 feet by buttresses of extracted honey in gayly labelled cans, extending far along one side of the building. Mr. Hall has on display about 9,000 pounds of honey in the comb, and about 13,000 extracted. Martin Emizh, of Holbrook, Oxford county, takes the palm for the nicest exhibit of comb honey. It is remarkably uniform and well filled out in the comb. Much admiration was expressed of this exhibit, which comprised about 4,000 pounds. Mr. Ramer, of Cedar Grove, Mr. Goodyear, of Woodstock, G. B. Jones, of Brantford, W. B. Wells, of Philipstown, Ont., Messrs. Granger & Duke, of Deer Park, and others contribute to make up the fine display, which here presents itself to the eyes of the visitors.

To many, a far more interesting and attractive object than the honey show was presented in the person of the Rev. L. L. Langstroth, who held a sort of extempore levee in the building, and went through a somewhat fatiguing ordeal in the way of shaking hands with the multitude of beekeepers and others who were introduced to him by President Jones and Wm. F. Clarke. It became necessary after a while to withdraw the venerable apiarist from the scene that he might rest somewhat, and be in tune for the public meeting. Meantime, a general reunion of beekeepers went on in and around the extensive exhibition building. Few seemed to feel much interest in the other departments to be found on the grounds, and there was ample proof of the correctness of a remark made by Mr. Langstroth, that of all classes he had met with none were so enthusiastic in the line of their calling as beekeepers.

The convention was broken up into a multitude of little conventions, and all seemed to enjoy the opportunity of social intercourse presented. Attention was not confined to the interior of the building but extended to a survey of the bee-hives, colonies of different races of bees, and the large variety of bee requisites to be found adjacent out-of-doors. To attempt a specification of all the numerous articles on exhibition would extend this report to a length that would be unsuitable, and should anything be undesignedly omitted, the inventor or owner would feel himself slighted.

AFTERNOON SESSION.

The Association resumed in the City Hall. Miscellaneous questions were the first order of business.

Dr. Thom asked if any one had experienced evil effects to the eyesight from the use of bee-veils. This led to a general discussion on the best material for bee-veils; several declaring in favor of black, and some in favor of white gauze. A few spoke in approval of wire netting, while others urged objections against it. A. I. Root said he had experimented, and used many endeavors to obtain a wire cloth that would have all the advantages of wire cloth, without any of its disadvantages, but had not succeeded. On the whole he would recommend beekeepers not to use veils unless obliged to do so. Mr. Corneil did not think veils did any particular injury to the eyesight, otherwise ladies would not wear them so extensively. President Jones recommended the use of the finest Brussels lace. Mr. Bowers thought the veil might be made of any cheap suitable material, with a window of the very best silk bobbinet.

Mr. C. W. Young brought up the subject of collecting statistics. He suggested that the local press should be more generally utilized for the purpose of conveying information about apiculture. A general discussion on the importance and yet difficulty of obtaining statistics ensued. President Clarke, of the Northeastern Association, said they had found it

impossible to get statistics even from prominent men, in any year, when they happened to be unsuccessful. For that reason the Northwestern Association had discontinued the publication of its reports.

The question of the proper width of sections was then resumed, and talked over at some length, but nothing particularly new was elicited.

At this juncture, Rev. L. L. Langstroth entered the convention, was received with a rising expression of welcome by the members, and conducted by the President to the Mayor's chair, as a token of respect, amid loud and prolonged cheers.

The President's address was then delivered. It consisted mainly of welcoming words in regard to the meeting of the Association, together with a brief résumé of the honey season just past. Prof Cook, Messrs. Bacon, A. I. Root, Pierce, and Dr. Miller made responses, gratefully appreciating the welcome which had been accorded to the Americans, and the pleasure it had given them to visit Toronto, and attend this convention. By special request of President Jones, Mr. Langstroth addressed the meeting. He gave an interesting account of the way he was led into beekeeping, and of his early mistakes and difficulties; related the manner in which he had been led to invent the movable frame, and the circumstances connected with its general adoption; and stated a number of interesting facts bearing on the history and progress of beekeeping. At the close of Mr. Langstroth's address, the Association proceeded to elect officers.

On motion of Prof. Cook, Rev. L. L. Langstroth was chosen President. The motion was carried by a standing vote. L. C. Root, of New York, was appointed first Vice President; Dr. C. C. Miller, of Illinois, Secretary, and C. F. Muth, of Ohio, was re-appointed Treasurer. A list of Vice Presidents for the several States and Provinces was also made up.

The question of the next place of meeting was then taken up. President Clarke, of the Northeastern Beekeepers' Association, on behalf of New York, invited the members to Rochester next year. Dr. Miller conveyed the request of the Northwestern Beekeepers' Association to appoint the next annual meeting at Chicago. On motion of Prof. Cook, Rochester was chosen as the next place of meeting. The date was left to be fixed by the executive committee.

EVENING SESSION.

Business resumed, Vice President Cook in the Chair. The discussion of miscellaneous questions was made the first order of the evening. Two enquiries concerning foul brood were laid on the table.

"Is it advisable to clip the wings of queen bees?" was next asked. A lively discussion arose, proving the house to be considerably divided on the point. One member announced himself "a clipper." Another said he might be a clip, but he was not a clipper. The reasons for and against were pretty fully stated.

"At what age should a queen be superseded?" was the next question. Mr. Hall thought no age could be fixed. Bees were like human beings, some were young when they were old, and others were old when they were young. Queens should be watched, and superseded when not working satisfactorily. Mr. Langstroth would not fix any unvarying time, but he had found two seasons, on an average, the term of a queen's greatest prolificacy. After that, they would show signs of failure. It was a remarkable feature in the Italians, that they were quick to notice signs of failure in a queen, and took early measures to supersede her. That alone was sufficient to recommend them.

The best method for feeding in the fall was next considered. Mr. Jones, on being called up advised the use of the best granulated sugar, in the proportion of two pounds of sugar to one of water. The discussion soon branched off so as to take in the topic of feeders. Mr. Langstroth and others discouraged the use of fancy feeders. Mr. Jones tilts the front of the hive a little, and pours the syrup on the bottom board, from which the bees take it up very quickly. Mr. Locke suggested that all beekeepers could not tilt their hives, and hence, some kind of feeder became necessary. He recommended the use of a Mason fruit jar furnished with a tin cover perforated with a number of holes. Filled with syrup and inverted, this made a good feeder.

The treatment of wax then occupied the attention of the meeting. Boiled down, the discussion amounted to this: that great pains ought to be

taken to purify wax; that to secure this it was necessary to keep wax in a melted condition for several hours, long enough indeed to allow all sediment to settle at the bottom. A. I. Root said he had worked up 12 or 14 tons of wax this season, and pursued substantially this plan. He made three qualities of foundation. Wax from the top of the tanks was used for section foundation, being the whitest; the second and third qualities being darker were sold at less price for brood comb foundation.

At the instance of Prof. Cook, it was decided that the rest of the evening be given to Rev. L. L. Langstroth for a talk on old bee books. This was very interesting. Beginning with Aristotle, Virgil, Columella, and Pliny, on each of whose knowledge of bees remarks were made. The speaker came down to books that appeared in the days of the Stuarts and the Commonwealth, the former entitled "The Monarchy of Bees," and the latter, "The Reformed Commonwealth of Bees;" indicating the different political circumstances of the times in which they were written. Some extracts were given from these books, and Mr. Langstroth expressed the hope that he might yet be able to publish a work embodying these and other observations on old bee books, which would show modern beekeepers that ancient apiarists knew a great deal more about bees than they usually got credit for. Even the advanced beekeepers of to-day might learn much from them.

At adjournment, it was decided that the convention should close with to-morrow afternoon's session.

THIRD DAY.

The Association met at 9 A. M., Vice President Cook in the chair. About 100 members were present at the opening of the morning session. Discussion of questions was resumed, the first being, "What is the best way of preserving surplus combs from the ravages of the moth?"

Judge Andrews thought there was no time when there were not eggs of the bee-moth in the comb. Heat would develop them. The combs should be carefully kept in some cool place.

Dr. Brown found it necessary, in the warm climate of Georgia, to have a comb repository, which he kept fumigated with sulphur.

Mr. Jones places his frames about an inch or an inch and a half apart, and if allowed to hang all winter, exposed to frost, there will be no trouble from the moth. He recommended that the joists of the honey-house overhead be set just the right width to hang the frames on rabbets, tacked to the lower edge of the joists.

Prof. Cook summed up that the moth would never trouble combs while sufficiently covered with bees; not so protected, the moth will certainly be developed; hence strong colonies were the best antidote to this insect. Comb should not be left lying loose around the apiary, but should be stored out of reach of the moth miller, and kept in a cool place.

The right temperature at which to winter bees was the next question considered.

Prof. Cook would say from 40 to 45 degrees.

Dr. Miller called attention to the varying markings of thermometers, which rendered it undesirable to fix very exactly the degree of temperature to be maintained. He would advise watching the bees, and keeping them in that temperature in which they preserve perfect quietude.

Mr. Jones used to think 40° was about the right temperature, afterwards he thought it should be 43° to 45°; but he had come to the conclusion that it was better the temperature should go higher than 45° than under 40°, especially during the latter part of the winter. He had frequently had the temperature of his houses go above 50°; in one case, accidentally it went up as high as 70° without any ill effect. More harm comes of letting the temperature go too low, than too high.

The general subject of wintering bees was then taken up.

A. I. Root was not going into the subject at length, but wished to mention a case in which the bees had been given access to water by means of a sponge, with good results.

Prof. Cook had followed that example of giving the bees a drink, but every colony so treated had turned out unsatisfactorily.

Mr. Jones did not believe in keeping hotel in a bee-house. He had never had any trouble with his bees being too dry. Excess of moisture had often troubled him. While speaking of wintering, he would strongly recommend the use of a bee-house with hollow walls, of a foot or more in thickness, filled in with sawdust or

some similar material. If you have 100 colonies, and were sure they would winter safely out-doors, you may calculate it would cost $1.00 per colony, or $100 more to winter out-doors than in-doors; it therefore pays to have a house. Instead of packing hives, he would pack the house the hives are stored in.

A running fire of questions was here opened on Mr. Jones in regard to various particulars relative to his method of wintering. The discussion gradually drifted off into the subject of ventilation, on which a great variety of opinions was expressed.

Dr. Miller frankly confessed that even yet he knew nothing definite about wintering. Circumstances and conditions differ so greatly, that what succeeds one season, fails another.

A member spoke of the unsatisfactory use of enamelled cloth in winter.

A. I. Root said it was a mistake to suppose that the cloth was to be used in all seasons. In winter he used burlap, a coarse species of bagging, which the bees could look through if they wanted to. He also used woven slats. He thought either of these with a packing of forest leaves on top, such as Mr. Dadant uses, made a good winter covering.

Mr. McKnight had tried various packing materials, but found nothing so good as the ground cork, in which grapes are packed when shipped from France. He found no difficulty in getting all he wanted from the grocers in his town.

A number of members gave their views of packing for winter, and various materials were suggested for the purpose.

At this juncture, A. R. Boswell Esq., Mayor of Toronto, entered the meeting, and was received with warm cheering. A vote of thanks was then enthusiastically passed, expressing the gratitude of the Association to the Mayor and City Council for the use of the City Hall free of cost for these meetings.

The Mayor replied, cordially welcoming the Association to Toronto, especially those members who have come across the border. He referred to the grand honey display, and the rapid progress beekeeping was making, and wished the Association the greatest prosperity.

On motion of D. A. Jones, seconded by Dr. C. C. Miller, it was resolved unanimously, That in the opinion of this meeting, the time has fully come for a recognition of the claims of bee-culture by its being taught in all the agricultural colleges throughout the continent of North America.

In connection with this resolution, a paper was, at the call of the meeting, read by Wm. F. Clarke. It was the only paper specially prepared for the Convention yet presented.

An interesting episode then took place in the form of an address, from the Ontario Beekeepers' Association, to Rev. L. L. Langstroth, accompanied with a purse containing $56 as a trifling token of esteem.

Mr. Langstroth replied in a feeling manner, and referred at some length to the manner in which his motives had been misunderstood many times, and to his earnest wish to promote, by all honest means, the interests of apiculture.

Vice President Cook expressed the great pleasure it had given him to attend this Convention, and to witness the harmony and good feeling which had prevailed. He was especially gratified at the presence of Mr. Langstroth, and the manifestations of grateful respect to him on all hands. In view of the many auspicious circumstances which had characterized this meeting, he proposed that all should join in singing the doxology. This was done very heartily, after which Rev. L. L. Langstroth pronounced the benediction.

As a number of the members were about leaving, there was much cordial hand-shaking at the close of this session.

AFTERNOON SESSION.

The Association resumed at 2 P. M., Dr. Miller in the chair. There was still a large attendance, though a number had left for home.

The first subject taken up was that of frames.

Mr. Hart complained that many of the frames he had obtained from the North were too slender, sagged too much, and sometimes broke.

Dr. Miller expressed surprise at this, and said he had experienced no such trouble.

Mr. Langstroth described a frame with triangular corner supports for the top-bar. He thought this could be made stronger than any other.

Mr. Muth said he preferred the frame he now used, which had a heavy top-bar, the whole underside of which was bevelled.

Some other members expressed their views on the frame question, but all agreed that it was desirable to have sufficient strength in the top-bar to stiffen the whole.

The question, what were the best barrels for shipping honey? was discussed.

Mr. Muth said a great deal of honey was lost by being put into improper barrels. They were often too weak and slender. Second-hand barrels were often used, and there was a constant loss when this was done. Honey was heavy and needed a strong package; he preferred cypress. Oak made good barrels when well coopered, but badly made, they were the worst of all for leaking.

Mr. Jones agreed with Mr. Muth, but thought white-ash preferable to oak. He had been greatly troubled to get thoroughly tight barrels.

Mr. Poppleton had found some second-hand barrels answer very well.

A resolution was introduced by Mr. Pettit, seconded by Mr. Muth, pledging the Association to do all in its power to remove the public prejudice against granulated honey. Considerable discussion arose on this resolution, which, at first, merely expressed the idea that granulated honey was "natural and good." Some wished to affirm that pure honey would always granulate. Others objected that it would not always granulate. Mr. Jones challenged any one to produce pure honey that would not granulate. Mr. Muth had kept California honey a long time, even three or four years before it granulated, but it did so at length. He had seen honey mixed with glucose that granulated to a certain extent. Mr. Jones said the pure honey would granulate, and the glucose float on top. He admitted that there was a difference in the grain; some was coarse, and some fine. After much tinkering at the resolution, it was finally adopted in the following form: *Resolved*, That we as individuals and as an association do all in our power by precept and by practice to convince the public that granulated honey is natural, wholesome and desirable, and that granulation is a fine test of its purity.

Mr. Jones was requested to give an account of his method of introducing queens by the use of chloroform, which he did, and then a general discussion of queen introducing sprung up. Mr. Langstroth narrated in an interesting manner some of his early experiments in queen introduction. Among others, he tried the experiment of making a whiskey syrup which he fed to the bees and to the queen. They acted very much as drunken people do, but when sober, would not accept the queen.

Mr. Jones stated that the reception of a queen depends on her own behavior. If she is frightened, nervous, and uneasy, the bees will ball and dispatch her, but if she is quiet and contented, there is no trouble. The main thing, therefore, is to devise a plan by which the queen will be led to act in a natural manner. Mr. Langstroth and Judge Andrews confirmed this view.

After some further talk on the subject of queens, Dr. Brown remarked, that one and another seemed to be dropping out of the meeting, and it was desirable that there should be a general hand-shaking all round. He therefore moved, seconded by C. F. Muth, that the Association do now adjourn, to meet in Rochester, N. Y., a year hence. The motion was carried, and the convention declared adjourned, *sine die*.

QUESTIONS AND ANSWERS.

QUESTIONS BY W. R. CROCKETT.

1. Are Italian drones, from an Italian queen which has mated with a black drone, pure?

2. How near to the hives do the queens generally mate?

3. How many Langstroth frames in the brood-chamber will give the best results when we run for comb honey and have boxes only on the top and none on the sides?

4. Are the Cyprian bees more inclined to swarm when you run for box honey than the Holylands or hybrids?

5. Which are the better, the wooden or tin separators? and would the wooden separators be better if there were holes in them through which the bees might pass from one section to the other without going to the bottom or top of the sections?

6. Which is better with which to fasten glass on our honey boxes, tin points or glue?

QUESTIONS BY G. W. DEMAREE.

7. What is the average life of the queen? and what is the greatest age you know, either from personal knowledge or authentic evidence, that a queen has ever attained.

8. At what stage of the development of a queen from a worker egg does the material change take place which so clearly distinguishes her from her sister workers?

9. Is a queen likely to be stunted or injured in any way, by "mating" when too young, as is the case with all domestic animals?

10. Does a laying worker live any longer than other worker bees? and how long is a laying worker capable of laying eggs?

ANSWERS BY J. HEDDON.

1. The Dzierzon system says they are; many excellent breeders dispute it, however. My own opinion is, no authority above the references given.

2. I think sometimes two or three miles and sometimes only a few rods.

3. In my opinion not to exceed eight.

4. I have never used the Cyprian or Syrian bees.

5. We have used the tin and wood separators considerably the past season. We see no use for separators at all; that is, no advantage offsetting cost and trouble of manipulation. We see no advantage that wood has over tin excepting its cheapness, which the tin fully offsets because of its durability and taking up no room between the frames. I do not think the holes would be of any advantage.

6. I should use the tin points in preference to the glue every time.

7. That depends upon the system of management. Where no special stimulation to breeding is used their life averages about four years; where it is much less I have had queens live five years and for aught I could realize did as much usefulness the fifth as the first or second year. I believe from statements I have no reason to doubt that queens reach the age of six or seven years.

8. I am unable to answer this question.

9. Such may be the case with some queens, perhaps those reared upon the hot-bed plan or hatching from cells left where all were cut out but the one. Where queens were reared in the natural way those of highest development first make a small hole through the capping through which they partake of food fed to them by the workers, becoming so active and strong before they emerge from the cell that they often fly into the air, apparently with perfect vigor. As queens usually wait from three to five days and sometimes fifteen before mating I think with properly reared queens there is little or no danger from this cause.

10. Having always discovered and superseded laying workers shortly after the beginning of their career I cannot answer this question better than to say that I think from known laws regarding both queens and workers that laying workers would probably outlive their sisters.

Dowagiac, Mich.

ANSWERS BY PROF. J. HASBROUCK.

1. After a good deal of effort to find out whether such drones are pure, I am satisfied that they are *not*. I have had, several times, half of a lot of queens raised from the same brood, fertilized as I know positively by drones from a queen producing all three-banded workers, and the other half by drones from a hybrid queen, and always the workers of the former were *all* three-banded, and the progeny of the other was mixed in various degrees — always better than from a queen having met a black drone, but *never pure*. This is one reason why the usual directions given in the bee-books for Italianizing an apiary never work in practice. If there is a reader of the Apiculturist who has succeeded in getting every stock in his apiary, to the number of ten or more, unmixed Italians in five years, without killing three hybrid queens, yearly, for every pure one saved, by the methods given in the books of Prof. Cook, L. C. Root, H. Alley, A. I. Root or the King Bros., I wish he would stand right up and give his name. I should like to know if the thing was ever done. I bought a dozen one-dollar and warranted queens the past season of as many different breeders. One warranted one I had duplicated, as she was evidently hybrid. All the others seem pure except on a close inspection,

when it is found that there is not one out of the twelve in whose stocks an occasional black young bee can not be found crawling out of the cells. They are hardly mixed enough, I suppose, to please our friend Heddon, but yet not one of them is *pure* and fit to breed from. While these breeders, I suppose, weed out all black bees near them, yet they tolerate hybrid queens, thinking that their drones will answer, and in this way they are raising the Apis Americana of a certain kind, but certainly not Italians.

2. I don't know, but I feel pretty sure that they go farther than our friend Alley puts it in the "Handy Book."

3. I think the brood nest should never contain more than eight L. frames or its equivalent, in any plan of boxing.

4. According to my experience the Holy Lands are much worse about swarming than the Cyprians or any other kind except perhaps Carneoleans.

5. I can see no difference in results between wood and tin separators, but I use wood rough, and ¼ inch thick; as it is cheaper and is worked more consistently. I have not tried perforated separators, but have tried narrow strips, leaving ¼ inch slots between them, without any visible increase in quantity of honey, but with a damaged quality, as the bees gridironed the capping to correspond with the strips.

6. I prefer glue. It is more certain to hold, is easier to apply and makes a neater job.

I have no "personal knowledge" as the lawyers say, on the subjects of either of Mr. Demaree's questions, except I have noticed in several cases of fertile workers, the past season, that they die out, or cease to lay, before all the workers are gone.

Bound Brook, N. J.

ANSWERS BY A. J. COOK.

1. Practically, yes. Some contend that a fowl once impurely mated is ever afterwards impure. A few beekeepers hold to the same view as to bees. The presence of the sperm cells, they say, renders the queen impure. If such is the case, it must arise through cell inoculation. I have tried extensive experiments with fowls, and have observed closely for years with bees, and I have yet to see the first proof of the truth of the above. My impurely mated Italians, always gave, apparently at least, pure Italian drones. The same has proved true of my Syrians. Is it not possible that those who have thought they saw proof to the contrary had impure queens to commence with?

2. I don't think any one knows. Mr. Alley thinks close by. I have known the queens to be out twenty minutes and come in showing signs of impregnation. They can fly a long distance in that time.

3. I have not used Langstroth frames for some years. Others could speak with more wisdom.

4. Have no experience with Cyprians. Syrian bees are no more given to swarming than are the Italians.

5. Think if the wood is good there is no difference. I should not care for any holes.

6. I have never glassed sections.

7. I have had queens five years old. Think, the way they are usually reared, two years would be about the average.

8. ? I think it tends that way from the first meal of royal jelly.

9. No danger at all. The queen, unlike lower animals, is sexually perfect as soon as she comes forth.

10. ?

ANSWERS BY P. H. ELWOOD.

1. Slightly tainted, but pure enough for all practical purposes.

2. Do not know.

3. Seven if Italian bees and surplus receptacles adapted to that number.

4. No experience.

5. Wooden decidedly. No better with holes.

6. With care and the best of glue a good job can be done, especially with nailed boxes. With dovetailed boxes tins are probably safer. It takes a little more time to tin and you have something reliable, but you get a handsomer job with glue.

7. Not much over three years with us. Where the winters are less severe they may live longer. I have had them five years old. Last spring Mr. C. H. Lake of Baltimore, Md., showed me a queen from the mountains of Italy that was seven years old.

8. Probably in the larval stage and previous to the last day before sealing, as queens reared from larvæ of that age lose most of their distinctive characteristics, and so are usually called fertile workers. There is enough dif-

ference in their looks, however, to distinguish them.

9. I have never observed.

10. I have looked for a laying worker for ten years, but have never found one. I once had a swarm that I thought was infected. In all other cases of drone layers I have found imperfectly developed queens.

Starkville, N. Y.

ANSWERS BY H. ALLEY.

1. No.

2. Reply to this question must be based on suppositions. Who can watch a queen when she gets a few rods from the hive? In my opinion it takes place within one-eighth of a mile from the hive. Drones will fly a long distance from home but queens do not. The distance at which mating takes place from the hive depends, of course, upon how soon the queen and drone meet after leaving the hive. When they have once met they must alight on some object or on the ground to disengage.

3. I should say six or seven frames, provided all are filled with brood.

4. Cyprians are not so liable to swarm under any circumstances as the Holy Lands.

5. With my experience I consider wooden separators decidedly the better; would not use tin under any consideration. If wooden ones could have holes in them the same as in perforated zinc it would be a great advantage and much better than leaving a space over and under the separator.

6. White glue, when the work can be done quickly and neatly. But is not there something better than either glue or glass?

7. Queens will live from one month to six years. One of my customers reported to me this season that he had a queen he obtained of me that lived six years. Mr. Aaron Benedict had one which was purchased of me that lived four years. Such cases are very rare. I don't think the average life of a queen is over two years. I generally supersede them as often as once in two years.

8. At any time from the moment the larva is one minute old, to the time it is nearly ready to seal up as a worker. When the royal jelly has been fed to a larva then transformation begins at once. Have seen the royal food around an egg before it had hatched.

9. In my opinion no queen ever mated too young, and should they mate, which to me seems almost impossible under a certain age or state of development, I cannot see how they would be changed or "stunted." There may be cases where mating has taken place on the fourth day after the queen hatched, but in my opinion such queens were not fertilized. That queens do mate twice I do not doubt, but that they are fertilized twice I do doubt.

10. I give it up. I think it will not pay a man very much to investigate a case of the kind.

ANSWERS BY DR. J. P. H. BROWN.

1. According to a corollary of the theory of parthenogenesis all such drones are pure. This theory is accepted as true by the majority of scientific apiarists. Some who take the facts involved in the higher order of animals as their standpoint to compare the fertilization of the queen and to reason by analogy, doubt the truth of this theory. In breeding queens I always avail myself of this "doubt" and reject the drones of all mismated queens.

2. I have reason to believe that mating most usually takes place at some distance from the hive. Were it near, the "act" might often be seen by the beekeeper, but such is not the case. During the copulating season of birds and many species of insects, the female takes most active wing to be followed by her troup of admirers, and "victory" is attained by the strongest and swiftest of the pursuers. The capability of the bee to gather honey is unquestionably measured, in a great degree, by its power of flight; hence it would seem that the Creator wisely intended the queen to make "*love on the wing*" in order to secure swift and hardy drones, and consequently fleet progeny.

3. Ten in very strong colonies and eight in average sized ones.

4. Cyprians I find more inclined to swarm than hybrids.

6. I prefer tin points. Glue is an article that adheres very imperfectly to glass. Gum tragacanth is better than glue.

7. Three years is a fair average. I have had queens to be good layers the

fourth year. It is very rarely that I find queens to live much beyond four years.

8. The "material change" takes place at no *particular* "*stage*" or point of the developmental process, but starts at the time the selected newly hatched larva receives its first morsel of royal jelly, and no doubt continues until the embryonic insect passes into the imago state; though the distinguishing characteristics can be plainly observed after she goes into the pupa condition.

9. Do not think there is such probability.

10. From my own observations I am inclined to think that laying workers live a shorter time than ordinary workers, and that their egg production does not extend beyond twenty or thirty days.

Augusta, Ga.

ANSWERS BY D. A. JONES.

1. I never could discover any difference yet.

2. I have known them to mate miles away.

3. I use a frame of different shape now. My frame is deeper and narrower than the Langstroth, and will leave this question for others to answer.

4. I never have observed them swarming more.

5. I prefer and use the perforated metal and it works like a charm.

6. That depends on make of sections and whether you are in a hurry or not; glass if well put on will strengthen some sections.

7. I have had them between five and six years old.

8. From the beginning.

9. Not usually.

10. With me no longer than I catch them at it; but when allowed to remain I suppose that they would live longer than bees that labor in the fields as the attention they receive and the labor that they do is different from that of the ordinary workers.

Beeton, Ont.

LETTER BOX.

Buffalo, N. Y., Oct. 14, 1883.

DEAR SIR: The first five Nos. of the Apiculturist received, and I must say that I am very much refreshed after the feast I have had this day in reading them. If you continue your paper as you have begun, you will have all the beekeepers of the land after them with their dollars. I predict for the papers a wonderful and uninterrupted success. It will meet with great favor by reason of its splendid array of contributors, of its peculiar form and artistic merit and beauty of its workmanship.

The letter department goes to show it is a sure proof of its superlative merit. Your have my thanks and sincere praise and admiration for the genius, pluck and perseverance you exhibit. Every beekeeper in America should rush to your support by subscribing at once and all supply dealers should send in their advertisements. Put me down as a life-subscriber.

J. W. TEFFT.

Christiansburg, Ky., Oct. 15, 1883.

FRIEND LOCKE: The weather with us has been remarkably fine since the middle of Sept., but the dry hot weather continued too late for fall flowers. Nevertheless my bees got a little honey from golden-rod and hydropiper and this with the stores on hand has left them in surprising good shape for winter.

We have had no frost here yet, and the pastures are as green as they were in the month of June.

I was nearly "sick" because I could not be with you and the rest of the "brethren," at Toronto, but circumstances would not admit of the indulgence. G. W. DEMAREE.

Somerset, Ohio, Oct. 23, 1883.

DEAR SIR: Since about July 10, our bees have done nothing, not made enough to live upon, and I predict that more than one-half of the bees in this section will starve unless well fed soon. R. B. WOODWARD.

New York, Oct. 30, 1883.

DEAR SIR: I received six copies of the American Apiculturist. It was a pleasure for me to read them; it is undoubtedly a very interesting and valuable bee journal, if not the leading one. Its contents are of great value to every one attached to and engaged in the bee industry. Wishing you the best success, I am yours, very truly,

HENRY SEGELKEN,

With H. K. & F. B. THURBER & CO.

The American Apiculturist.

A Journal deboted to Scientific and Practical Beekeeping.

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CAUCASIAN BEES.

BY ARTHUR TODD.

A RECENT number of the AMERICAN APICULTURIST publishes an interesting article upon the qualities of this race of bees as noted in New York State from the pen of a first-rate apiculturist, Mr. Julius Hoffman of Fort Plain, N. Y. On the occasion of a visit I made him some months back he showed me some of his colonies of Caucasian bees, and we had a pleasant talk upon their merits. Having recently received through the courtesy of my friend Mr. Layens of Paris, and Mr. Bertrand the editor of the "Bulletin d'Apiculteur" for Switzerland, an entire collection of that journal for the past three years, I found therein a report of an apicultural congress held at Erfurt in Germany, where the following questions were submitted for discussion.

"Has the newly introduced race of Caucasian bees any special value to us from a breeder's point of view, and what other race of bees would be particularly advantageous for crossing purposes?"

Mr. Hilbert replied as follows:—

The greater part of those present know I have just established a new apiary, and that in buying stocks I have endeavored to procure all the known races of bees. The reports of the Russian Councillor of State, Dr. Butlérow, made known the Caucasian bee. By the kind intervention of this gentleman I have received two queens, natives of the Caucasus; Mr. Gunther of Gisperslehen also sent me three queens, so that I commenced with five Caucasian queens. We may sum up the qualities of this race of bees in three words,—gentle, idle, non-prolific.

I recommend these bees as gentle, although there are some few among them that may prove diabolical for stinging. You know, as well as I do, that each race of bees has its own distinctive shades of character; now the Caucasian race is the most idle of all races.

As regards "increase" my five queens and their colonies devel-

oped very late in the season, ceased the soonest to have any eggs or brood, and several of the hives had no honey at all.

Now we have in Germany quite enough idle and lazy bees; why then should we import any more? As you already know, I have often expressed my opinion on the subject of the importation of bees. I have condemned this enormous importation, more especially on account of beginners, because many of that class vie with each other in procuring bees of foreign races. Indeed, many go so far as to say that we ought not to import any bees at all. I cannot absolutely conform to this.

Following in the steps of our agriculturists, let us infuse into our domestic animals fresh blood from outside; in this manner we regenerate our bees by crossings with other races. The cross of the Italian bee, for example, with the Egyptian has a good effect. As regards the absolute material forming the cross, according to my judgment the Italian bee has not come up to the mark, for the queens are weak, and the more I try to preserve the race pure the greater become my losses.

The Cyprian bee, on the contrary, has admirably sustained the test from the point of view of vitality; with it we have obtained good products by crossing. I do not care to have only Cyprians, on account of their abominable habit of stinging. Let those of you who do not know the Caucasian bees not trouble yourselves to make their acquaintance.

Mr. Vogel continued the discussion thus: I have received for three years past Caucasian bees from two different quarters of that country, thanks to the help of Dr. Butlérow.

In the spring of 1879 twelve were sent to me which did not come directly from the Caucasus, but by mistake from the country of the lower Don. The colonies with these Caucasian queens developed prodigiously. In July the hives were crammed full of bees but—there was no honey in them.

These bees were gentle beyond all description, for in the very warmest weather I have not been able to make them sting.

The wintering of these colonies as well as of those raised later on was excellent. During the summer of 1880, the product in honey of these Caucasian bees was still equal to zero: the hives filled up again in June and July with brood and bees, but, in autumn they had no honey, gathering-time in my location ending with the reaping. This Caucasian bee was therefore of no value for my country; therefore I cease to raise them. They might perhaps do better for countries where there is plenty of honey to gather in the autumn.

In the course of the summer of 1879 I again received from Dr. Butlérow four queens coming directly from Weadikowsky in the Caucasus. Of these four queens there were above all two which distinguished themselves in 1880; their hives were populous, and very rich in honey. The colonies raised by me from these two queens distin-

guished themselves in an equally advantageous manner. This year again, 1881, the Caucasian bee has made itself remarkable above all other races by the enormous population in the hives, and quantity of honey gathered.

The Caucasian bee then proves the justness of an old assertion of mine, which is, that we ought to utilize in some way, as a sort of lever in our breeding, only the power of the individual; that is to say, the power of certain hives or rather of certain queens. I do not consider as perfect any particular race: I wish by that to convey that the prosperity of apiculture does not reside in race, but that the value of any one race, whatever it may be, is only an individual value.

If I do not err, Mr. Hilbert holds other opinions, for he seems to admit that there are some races of bees, of which all the colonies are of equal value, and are equally good, or equally bad, but that cannot be sustained. Mr. Hilbert appears to have received accidentally some worthless Caucasian queens; he has told us that the Caucasian bee bred in Germany is fond of stinging. This I do not admit at all.

A different climate, and other circumstances appertaining to actual honey-gathering, do not act with the rapidity of gunpowder upon the physical qualities of a bee, and do not instantaneously transform its character.

All the pure Caucasian bees raised by myself displayed the same gentle characteristics as the original bees. The Caucasian queens, on the contrary, crossed with German drones, and therefore not purely mated, produce, almost without exception, bees of surprising fierceness. Here is where the observations of Mr. Hilbert come in with truth.

The Caucasian bee has always until now wintered perfectly well; it is in winter as quiet as any other race. It is particularly useful for crossing purposes. Mated with the Italian bee we obtain a bee still more gentle, and of a very beautiful color.

My Caucasian bees, including the originals (two queens of which are alive still) have for the greater part the same colors as the Italians. The greater part of the worker bees of the Caucasian race have still the little yellow marking, like the Cyprian bee (on the back at the third ring of the thorax). All the bees of Asia Minor present the same external characteristics.

If we consider (or reflect upon) the geographical distribution of the honey bee, the idea is forced upon us that the Caucasian bee, that of Cyprus and that of Asia Minor, belong to the secondary races, issues of a crossing of our dark German bee with the Egyptian bee.

Mr. Dathe, of Eystrup, said that his father had also received bees from the Caucasus through Dr. Butlérow, and that after having tested the merits of the race, he intended to speak of them at the general assembly of beekeepers at Cologne in 1880, when he died.

All that he personally had observed with the Caucasian bee led him to approve fully all that had been stated by Mr. Vogel.

Mr. Haus of Saint Petersburg stated that in the spring of 1879, Dr. Butlérow received twenty-one queens of which twelve were sent to Mr. Vogel. These were pure Caucasians, and did not come from the region of the lower Don, as has been supposed by Mr. Vogel. These bees while being active, did not give any very remarkable results; they had a tendency to rob. The wintering lasted 218 days, after which laying proceeded rapidly.

Mr. Lehzen, of Hanover, thought that the present debate cannot settle definitely anything about the Caucasian bee which has only been cultivated in Germany two years, and in small quantities. Every one knows that the product of an apiary depends in a great part on the way it is managed.

If we often open the colonies they get irritated, they sting, and eat up all their provisions of honey; then they are adjudged wicked and idle. Another person will care for them well, will give them combs, and will make a strong colony which will produce honey. One will lean naturally towards that race of bees that evinces the latter characteristics and pass on it a favorable judgment.

Let us consider also that a foreign race, imported, is being transformed during the first years in our climate and that before the end of the period of acclimatization, we ought not to pass judgment one way or another. The Italian bee is acclimatized in Germany; the first year, it ceased to lay earlier, but the second it was just the same as our heather bee. I hope therefore those here will wait some years before definitely pronouncing upon this race of bees.

Wrong is done to apiculture by extolling any one race without speaking of its bad qualities; we therefore ought to thank Mr. Hilbert for having pointed out what he considers those of the Caucasian bee.

Referring now to Mr. Hoffman's article we find he endorses the opinion that "when pure" (a most necessary qualification) these Caucasian bees are the quietest, and the most gentle with which he is acquainted. Mr. Hoffman admits they do not breed so early in spring as other races, but points out a possible benefit therefrom. Again, he states the wintering compares favorably with other races. The honey-gathering power, according to him, equals any race he has ever tested, and this is a strong point. The bad features and the good are well set forth in Mr. Hoffman's article (page 122 of The American Apiculturist, Vol. I, October, No. 6, 1883) and to appreciate the shades of difference I advise a reading of that article side by side with the utterances, at the Erfurt Bee Convention, that I have the honor and pleasure to translate for those to whom they may be interesting.

Phila., Pa., Nov. 12, 1883.

PROLIFICNESS OF QUEENS

By J. E. Pond, jr.

The questions are often asked by beginners, "what need is there of queens to lay so many eggs, and why is a queen not considered valuable, unless she does actually lay 2,000 or more eggs per day in the honey season?"

The vast prolificness of queens has always been a matter of surprise to those not familiar with apiculture, and doubts have been entertained as to whether they actually lay the vast number of eggs that is claimed at times they do. When, however, it is fully understood that an immense amount of heat is constantly required to enable the eggs to hatch, and that as the heat is generated by the bees themselves, an immense number is needed for that purpose, to say nothing of the vast number required to constantly forage for supplies, it remains a surprise no longer. I am induced to write this article, because I have lately received several letters bearing upon the subject, and I assume that it will prove of interest to some beginners who seek for knowledge in the pages of the Apiculturist.

In early spring following a long and severe winter, those colonies that were exceedingly strong the previous fall will be found to be terribly decimated in numbers, and that something is required so to increase them, that they will be able to take advantage of the fast approaching honey season.

It is now generally admitted, that a colony of bees, to be able to give any considerable amount of surplus, must consist of some 40,000 to 50,000 workers by the first of June. If all the bees that were hatched lived through the whole season, a queen that laid 700 or 800 eggs a day might be able to replenish a hive, in season for the honey campaign, and keep it filled with an effective working force; but when we know that bees in the height of the working season live only five or six weeks, and that a sudden storm is liable to destroy thousands from a single colony, the necessity is at once seen of having some means to keep up a supply of workers, other than a queen that lays but 700 or 800 eggs a day.

We will suppose a colony to have passed safely through a long, tedious winter, and is found in early spring to consist of some 12,000 to 15,000 workers, which I presume will be admitted to be a fair estimate. Now it has been ascertained, by accurate tests, that twenty-one days are required to hatch out the full fledged worker from the egg; it has also been ascertained that four or five days elapse after the worker emerges from its cell, before it can attend to any duties inside the hive, and ten to fifteen more before it begins to forage. The honey-gathering season ordinarily begins with white clover early in June, and only lasts till about the first of July; and in Massachusetts, at least, by far the larger proportion of the honey crops is gathered within those periods.

An ordinary hive (and by that I mean such an one, as by tests has been found to be most practicable) will contain from 40,000 to 50,000 workers, and as I stated before, this number at least is required to give us good paying results. Now it is easy to figure up the matter, which may be done in this way: a hive on March 1 contains, say, 15,000 bees; by the latter part of May, it should be increased to at least 40,000, of which two-thirds at least should be effective foragers; the balance may consist of those five or six days old; in the meantime all or nearly all of the original 15,000 have died off. Thirty-five days from March 1 carries us to April 5, and the increase will have been perhaps 15,000 bees, with an ordinary queen, one-half of which must remain in the hive; and of the original 15,000 one-half have died. By following out the calculation in the same proportion, it can be seen at once, that a queen that does not lay at least 2,000 eggs a day from the latter part of May all through the balance of the season is not worth preserving, and should be replaced by a more prolific one. Tests also show us that the honey season is intermittent, and that the laying of the queen depends wholly upon whether honey is coming in or not. The question of stimulative feeding also is of the utmost importance as a factor in the matter of success, and each colony must be carefully watched, in order that a supply of stores may be fed at all times when no honey is being brought in.

Success depends wholly and entirely upon an effective force of foragers, and the supply depends wholly upon the queen; now, unless the laying power of the queen is adequate to give about such results as I have stated, she is of no value whatever. Extra queens though have been condemned, simply because the owner did not understand the necessity of supplying food, when the flowers ceased to secrete nectar.

It is of the utmost importance to know the honey resources of your locality; to know not only the various flora, but also their times of commencing and discontinuing to secrete those liquid sweets, which are the source of revenue to the apiarist. In the olden time when box hives and brimstone pits were the chief resources of the apiary, it was thought enough to do, to put the swarm into a nail keg, and let it work out its own salvation. In these days it is to be hoped, that none will attempt to keep bees, without first learning the best ways and means of caring for them, and then applying their knowledge in a careful and attentive manner.

Foxboro, Mass., Nov. 1883.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 152.)

The Swiss mountains, by reason of the many herbs and wild *haiden* which grow upon them, and the flowers which are so abundant be-

neath the grass in the valleys, furnish rich food for the bees. The Swiss, therefore, use large bee baskets made of straw. These straw baskets measure, on an average, about three feet in height, and are two and a half feet wide. There is no cover on the top, only a large stopple. They have no bottom-board, the lower edge ending with a straw ring, the entrance being large enough to admit three fingers comfortably. These straw baskets must be made well and with care that they do not give way to the weight of the honey, and retain their form. They have no cross-bars inside, on which the combs may hang, so that the operator may cut them easily and to the top.[1] In removing the honey, which does not take place before Michaelmas (Sept. 29) the operation is as follows:— they turn the hives bottom up, drive the bees to one side with tobacco-smoke blown from a short pipe, and remove one-half the combs, if the store of honey will admit, which may be determined by the weight of the stock. One-half the combs from such a hive, when well filled with honey, weighs about forty pounds. The space thus left vacant should now be filled again for the winter, although it will do no harm if the bees do not entirely rebuild it, as there is generally a large quantity of bees, and the store of honey will be sufficient for them to winter on.

The following season the honey is taken from the other half of the basket in the same way; by this method the comb in the hive is nearly all renewed every two years, and this without resorting to the cruel and unnecessary slaughter of the poor and innocent bees, a practice too often adopted in many countries where bees are kept.

A well-known practical beemaster from Switzerland, generally known there as the bee-king, an old, honest Switzer, who came to Hamburg this spring, and there very skilfully exhibited his method of handling the bees, assured us, that he had just such straw baskets containing colonies which had occupied them uninterrupted for forty years since hiving the first swarm. I was very glad to learn that this well-known bee father, who has several thousand colonies under his care in Switzerland, practises the same methods as I do, which render my hives so convenient that I hardly think they could be improved upon. These principles are as follows:

1. Keep large and populous stocks.

Only with such can you gain an actual profit, as will presently be shown. Only such give the queen the necessary amount of brood room and decrease the liability of the swarming fever, and such are proof against the evils which result from keeping weak stocks. My hives are well adapted to the purpose as every reader will understand, and

[1] That the heavy honey combs do not break oftener must be that the bees fasten them very strongly with cement and bee-glue, which they frequently find there. In our country, we should be obliged to provide such large straw hives with bars. Our wax must be much cleaner than theirs, as the beeswax produced in Switzerland contains more rosin.

every beekeeper who uses them will be convinced of their excellent qualities.

2. In removing the surplus honey and wax, take care not to injure the bees.

My hive is especially adapted for this; more so, in fact, than all others, even the Swiss, as the beeking to whom we have alluded could not deny. It is certainly much better to remove one, two or three combs filled with honey than to remove the hive from its stand, covering it with smoke, and cutting out combs which are liable to contain both brood and honey. The same Switzer exhibited extraordinary skill and courage in handling bees and removing their combs.

Without any protection, he took one colony after another, regardless of the number of bees which filled the air, drove them back with the tobacco-smoke which he blew upon them from the pipe or tube held in his mouth, cutting the lower ends of the combs without being stung. Sometimes he blew the bees away, if there were only a few that hindered him, gently with his mouth. This skill and courage, however, which constitute the whole secret of success, are not possessed by every one and not easily acquired.

The Swedish beekeepers are very practical in their methods of conducting arrangements in the apiary; their hives are round, hollow logs[2], about $1\frac{1}{4}$ feet in height and 10 inches in diameter. On the top is a flat, wooden cover which can be easily removed, and the entrance is in the middle instead of at the bottom of the hive. One of these logs is placed bottom up and another is set upon it, thus making of the two one hive, resembling a large hour-glass. After the upper half is filled with comb and honey, the cover is removed and what honey can be spared is taken from it; the cover is then replaced, the hive (like the hour-glass) is inverted, so that the empty half is on top, and the lower entrance is closed, the bees being obliged to pass out through the upper entrance. The bees soon begin to build their combs from the top and fill the hive again.

However practical and useful these hives and systems of management may be, yet they are only suitable for those portions of the country, where the bees gather their large honey harvests late in the season and where the *haiden* is abundant, and the Swedish beekeepers would obtain far better results and manage their bees more easily by using our form of beehive. In our country, and where the bees gather the larger portion of their honey in the spring-time from the flower blossoms and the honey-dew, it is very seldom advisable or advantageous to cut out the honey as late in the season as Bartholomew (August 24) as the bees are seldom able after this time to gather enough honey to refill the hives and supply themselves with sufficient winter stores, for want of which the colonies would perish during the winter.

[2] These Swedish beehives are quite similar to our bee gums.— ED.]

Now, however, in these economical times, in every land and country where bees are kept, special interest is taken in their management, and already many books pertaining to beekeeping have been written, but the directions given in these works will not be found to be equally beneficial in all countries. We also have, in our own country, many new and good articles written on the subject of bees and their management, the value of which I shall not deny in this present work, but I would here acknowledge my indebtedness to them for many practical hints and experiments. But many of these works are written only for the experienced apiarist, at the same time failing to give any such information as would be of use to the novice. Many contain numerous suppositions and treat of methods, based only on hypotheses, which I have found to be wrong and harmful in my own experience.

Some include with the good so much that is troublesome, and misleading that a beekeeper, especially if he have not much time, becomes easily discouraged: and the result of all these annoying theories is very unprofitable, and they should be viewed as merely speculative.

I have, in as brief a manner as possible, brought these facts to your attention, not deeming to dictate anything that could not be positively proven through my own experience. I can therefore speak with assurance, and advise every beekeeper, for his own benefit and pleasure, to follow out the instruction that I have given here, for by no other will he obtain better results or find an easier method of management.

THE AUTHOR.

Rodheim, July 24, 1779.

(*To be continued.*)

QUALITIES OF SYRIAN AND PALESTINE BEES.

MR. DOOLITTLE'S VIEWS EXAMINED.

BY FRANK BENTON.

COMING from a man whom I have been accustomed to regard as pretty generally correct in his conclusions in regard to bee-matters and honest in the statement of the same, the views of Mr. G. M. Doolittle, as expressed on page 500 of the American Bee Journal for Oct. 10, surprise me exceedingly. All my experience in beekeeping has tended to make me value prolificness in a queen above all other qualities—to regard it, in fact, as the basis of all success in honey production. If we have the workers in a hive when the harvest opens we are sure of honey. This Mr. Doolittle will not deny, nor can he say that the individual workers of the Eastern races are not *the best of honey-gatherers.* But he admits, yes, even claims it as a *fault(!)* that the queens of the "Holy Land" bees, as he calls them, are extra prolific. Where then lies the fault? What's the reason Mr. Doolittle finds these bees "practically good for nothing for

his locality?" His own sentences condemn him. Read the following. He says: "These bees seem to think that a large flow of honey should mean lots of brood, so at brood-rearing they go." (That's just what I want them to do whenever the weather will permit.) Then follows the statement that, "when fall arrives, we have a hive overflowing with bees." (That's what I want and can have, not in the fall alone, but from spring until fall with these bees.) Farther on he says: "All are aware of my views regarding the secret of honey producing, lying in, getting the bees just in the right time for the honey harvest (neither too early nor too late), that being of more moment than any other thing pertaining to honey producing." Admitted. But our friend gets his bees "when fall arrives!" Oh, well, the next sentence sets that all right (?) "That the Syrian bees cannot be thus managed in this locality is the reason of my saying they are practically good for nothing." Passing by for the moment the fact that Mr. Doolittle starts out with "Holy Land" bees and concludes with a very different race, the *Syrian* bee, I would point out here that Mr. Doolittle, after having admitted that these Eastern bees are especially inclined to rear brood whenever food is coming in, then says he fails to get his hive filled with bees until fall, and follows by saying that he cannot manage these bees so as to get the workers ready for the harvest. And this a simple confession on the part of Mr. Doolittle that he cannot accomplish what, to use his own words, "is of more moment than any one other thing pertaining to honey gathering." How does this agree with his reported success in raising comb honey? Why, if I should take an apprentice in bee-culture, this would be one of the *first* things I would teach him! and with no bees could it be *more easily* accomplished than with Eastern bees.

Mr. Doolittle further says: "They have another exceedingly bad feature, which is, that before the young queens are fertilized in the parent hive which has cast a swarm, fertile workers spring up, and the result is a queenless colony." Not at all. If left to themselves, the young queens of Eastern races are just as sure as those of any other race to become fertile and commence laying, and if fertile workers have commenced laying in the hives they will almost invariably disappear without occasioning the least trouble. Eastern bees are more liable than any other races to have fertile workers, Palestine ("Holy Land") bees more so than Syrians. But this "bad feature" is by no means such a difficult thing to cure with them as with other bees. I usually give little heed to it, introduce queens, even virgin queens, put in queen cells or give them brood and let them rear a queen. This they rarely fail to do, but carries with it the objectionable feature of allowing the fertile workers time to get worker combs filled with

drone brood, and to waste honey in rearing these useless fellows. These are, in my opinion, by far the worst features of the fertile worker tendencies, of the new races, and not friend Doolittle's bugbear.

In his last paragraph Mr. Doolittle gets back to the race of bees with which he originally started, the "Holy Lands." He says: "However, as in all respects, unless it is in wintering, they are inferior to the Italians, I felt warranted in doing away with them entirely, and to-day finds my yard without a Holy Land bee in it." Now, if Mr Doolittle really means "*Holy Land*" bees, that is, bees from Palestine proper, and not from Syria, and will throw in the "wintering" and leave out most of the "respects," I'll agree that the statement is correct. In other words, the bees that come from south of the mountain range that extends from the Sea of Galilee to the Mediterranean terminating in Mt. Carmel—*the true* "*Holy Land*" or Palestine bees—stand in my list of good bees, *fifth;* or, after Cyprian, Syrian, Carniolan and Italian bees. They are inferior to Italians in temper, in not clinging to the combs, in wintering qualities, and in that they are more easily pestered with fertile workers, and though superior to Italians in beauty, in prolificness, in defending their hives, in strength and rapidity of flight, and in diligence in collecting stores, still, on account of the grave faults just mentioned, I put them, all in all, after Italians. They are the smallest bees of the species *Apis mellifica* that I have ever seen. Their pointed abdomens usually show three lemon-yellow bands, but all are not equally well marked, the variation in the same hive often being quite striking. Their bodies show a remarkable elongation when filled, and such workers, if well marked, are very handsome. The thorax, the edge of each abdominal ring, and the tip of the abdomen are covered with very dense gray fuzz giving them the appearance of having been dusted with flour. The drones especially have a very thick coat of iron-gray fuzz on both the thorax and abdomen. The queens have rather elongated-appearing bodies, often a beautiful yellow in color, though many of them are leather colored. Palestine bees are very liable to fly into a passion upon slight provocation, and when once aroused are not easily subdued in any way. I have noticed a remarkable variation in the disposition of different colonies of these bees. This, with their irregular markings, is a proof that the race is not well established, that is, it leans first toward one type, then toward another. In general, these bees are difficult to manage. They crawl from the frames upon one's hands and quite impudently creep under sleeves and cuffs, biting the flesh and then often curving their bodies and stinging. They crawl on the combs and drop off much like black bees. In a cold climate they die off in winter and spring, somewhat as did the Egyp-

tian bee when brought to Europe and America. In fact, after four years of experience with the bees of Palestine I regard them as constituting an inconstant race forming a connecting link between the Syrian and Egyptian bees, resembling more nearly the Egyptians than any other race, yet to be preferred rather than the latter, although not equal to the Syrians. Such is the true "*Holy Land*" bee.

Going northward on the mainland lying adjacent to the Mediterranean, we find, after passing the mountain-range above mentioned, a very different bee—the race of Syria proper. These bees are larger and more golden yellow than those of Palestine, very uniform in general color and markings. The queens are generally larger, a greater number are yellow rather than leather colored, and they are even more prolific than the queens of Palestine. The drones, instead of being such a complete gray in color, are more or less mottled with yellow. The workers do not run on the combs nor do they drop off at all unless the combs are shaken. They can be handled much more easily than the bees of Palestine, and, even if aroused, are less vindictive. They are beautiful bees. The fuzz on their bodies is brown with just a tinge of gray, and the three golden-yellow bands are distinct and never lacking. The type is well fixed, and in all parts of the Lebanon only a distinctly golden-yellow, active, strong-winged race is to be found, which distinguishes itself for its prolificness and its good honey-gathering qualities. In short, we see here a race far more closely related to the Cyprians than to the Palestines, and like the Cyprians, they winter better than do Italian bees, while, with care, they can be manipulated more rapidly than Italians. Such is the Syrian race of bees, which, introduced into America in its purity, cannot fail to find favor with the mass of intelligent apiarists. I never recommend the "Holy Land" bee further than the above recommends it, and though I have better facilities for procuring these bees than the Syrians and can get them at somewhat less cost, yet I must state my conviction that, of the two races, the Syrian is decidedly the preferable one. I have addressed many queens of each race to Europe and America and have never failed to mark plainly on each box the name of the locality from which its contents came so that if, in the face of my remonstrances, some have persisted in mixing them together and calling them all "Holy Land" queens, I am not to be blamed for the present jumbled-up state of public opinion regarding Eastern bees. Nor should the good bees of Syria forever bear a bad name because somebody chooses to make them associate with bad company. For my part I have always called and shall continue to call, the bees from *north* of the mountain range mentioned *Syrian* bees, and restrict the term *Palestine* bees to those from *south* of that range,

leaving the name "Holy Land" as applied to bees, for such as have a mortal dread of being too exact in their work and modes of expression.

Munich, Germany, Nov. 3, 1883.

EDITORIAL.

One of the most vexing and seemingly knotty subjects with which the beekeepers of to-day have to cope, is that of how we shall dispose of our honey with the best results both to the producer and consumer.

The majority of the beekeepers are composed of the hard toiling producers, who "earn their bread by the sweat of their brows" (the most honorable and only God-given means of obtaining a livelihood), and this subject is one of great interest and vital importance to them.

It is a well known fact that the majority of the laboring classes are obliged to be content with the necessities of life while the few are supported in luxury; nor is apiculture free from this. After paying the supply dealers' bills, the current expenses of the apiary, the cost of shipping the honey and the demands of those who sell their honey for them, there is but a small amount left for their own remuneration for their hard season's work, and the interest of the capital invested.

Do we not state the facts in the case? It may be pleasing to listen to the reports of large crops of honey; but when we sit down and carefully estimate how many pounds of extracted or comb honey must be taken from an apiary of one hundred colonies to pay the expenses and give the apiarist fair compensation for his time and investment, a great deal of the beauty of the picture is spoiled.

This may be rather plain talk, and there may be those to whom it is not pleasing, but we consider it our duty to the thousands of beekeepers who look to our journals for advice and instruction to deal with a fair representation of beekeeping *as it is*.

The great question now is, are there any means by or through which we satisfactorily settle this subject. We feel warranted in assuring our readers that there is open to us one way by which we may dispose of our honey so that both the producers and consumers will be benefited.

When our beekeepers, becoming fully aroused to the necessity of making some reforms, turn out in *en masse* at our state conventions, and elect delegates to our national convention who have the interest of the beekeepers at heart and who go to the national convention determined to carry out measures which shall help to establish apiculture as a safe and remunerative industry; then and only then can we fully accomplish the desired results.

We are deeply interested in this matter and feel more deeply every day the necessity of a more thorough organization of the beekeepers. There are those who think to live on the hard earned dollars of the

beekeepers, who have not one iota of interest in their welfare other than how they can make the most out of them, and these are those against whose designs we would protect our brother beekeepers. Just so long as the beekeepers will support and sustain us in our work, we shall speak the truth as we see it fearlessly and unhesitatingly and we do not need that any person or *coöperative association* urge us to defend the rights of those in whose interest we are working. We only ask that justice and right prevail, and if we cannot effect these needed reforms we may at least cry out against injustice wherever and whenever we see it.

The beekeepers *must* build up their own markets and sell their own honey. This is not by any means a hard task to accomplish and when it is done the profits which are now consumed by the non-producing middle-men may be divided between the producers and consumers, giving the former a better price for the honey and reducing the price to the consumers so that honey no longer will be a luxury but a staple article of commerce more nearly equal in price with *pure* cane sugar, and syrups. More than this, the curse of adulteration could then be more successfully coped with and the demand for honey largely increased.

This is no idle talk, and we feel assured that we speak the sentiments not of a few *chronic grumblers*, but of a large number of our most prominent apiarists and those who have the interest of apiculture at heart. If our sentiments are not thoroughly grounded we are open to conviction, but so long as we feel that we are right we mean to express our opinions candidly and yet kindly, hoping they may tend to improve the condition of our brother beekeepers. Mr. D. A. Jones of Beeton, Ont., has shown American beekeepers what one enterprising person can do in the way of creating a honey market, and obtain the best price for his honey. He reaps the full benefit of his season's work, and others following in his footsteps have produced results which astonish the world in the shape of exhibitions of honey. Now if the beekeepers of the United States once commence right and "stick to it," apiculture will receive such an impetus as it never yet has seen. Let us go to work and see what we can do.

CORRESPONDENCE.

Editor of American Apiculturist:

Dear Sir,

At beginning of the season the demand for comb honey was rather dull, owing undoubtedly to the warm weather. But since that time the demand has increased largely for all grades; our sales for last week were enormous, and amounted to 16,500 pounds, and only a few jobbing sales at that, the largest portion sold in five or ten crate lots. All the comb honey we received this season from different sections of our state arrived in first class order, not one crate in a broken or leaky condition; certainly it depends mostly how it is stored away in cars or canal boats.

The supply of extracted clover and basswood is good, the largest portion coming from N. Y. state. We also received some large lots of very fine quality from Wisconsin; the demand for extracted is fair at satisfactory prices.

COMB HONEY.

Our market generally demands two and one pound sections: about two-thirds of two and one-third of one pound. For a two pound section our beekeepers should use the 5×5 frame, packing either 12 or 15 in a crate; making the net weight of crates containing 12 combs about 22 lbs. and those of 15 combs about 28 lbs. Retailers always prefer this style comb, as they are generally sold to consumers for two pounds; this giving the retailer the extra profit of about 2 pounds on a crate. We would prefer to handle the 15 comb crate; a retailer, in purchasing honey, will just as soon take a large crate as he would a small one. Besides, it is more profitable to beekeepers, where they now use 5 crates for 60 combs; 4 larger crates will answer the same purpose and make as neat a package in every respect. Consequently they save money and labor and also increase the sales of honey.

We also recommend to those, who thus far have not used it, to have a sheet of thick paper in the bottom of the crates; if a comb should commence to leak, it will stay in the crate and not drip over the other crates, spoiling their looks. It would still be better, to lay thin strips of woods on top of paper crosswise in the bottom of crate, one on each end and two in middle. In this way if *one* comb should leak, it would not saturate the bottom of the other combs: certainly, a little more labor, but of no expense of any consequence. Some of the finest white honey in 2 pound sections we received from Messrs. Geo. W. House, of Fayetteville, S. Snow, of Fayetteville, C. J. van Eaton, of York, W. L. Tennant of Schoharie. Some of our friends have not shipped as yet. Mr. Irving W. House, of Fayetteville, sent us a few sample crates of 2 pound combs, put up in the most handsome style we have yet seen. Top and ends of combs are labelled with bright, attractive labels, showing an apiary in active operation. The style and neatness of said package cannot be excelled, and will undoubtedly find rapid sales at a much higher price.

Our market has but very little demand for 1½ pound sections, and we can obtain but very little more for them, than for the 2 pound sections.

In the one pound sections the paper boxes take the lead. Messrs. C. G. Dickinson and I. McFarland of South Oxford, sent in the nicest style of package. Their crates hold 20 combs, 5 deep and 4 wide, the two middle combs on both sides are glassed, showing the quality of the honey, without opening the crate, the other 18 combs are in blue labelled paper boxes, with gold lettering, which gives it a splendid appearance. For honey in this style a good price can always be obtained. One pound sections in glass will also find good sales, but will sell for less money. We are expecting a fine lot yet from Mr. I. L. Scofield of Chenango Bridge, and S. J. Snyder of Venice Centre.

The one-half pound sections are too small, at least for our market and come too expensive for both producer and consumer.

EXTRACTED HONEY.

Our market calls for large packages: barrels, half barrels or kegs. Cans holding about 5, 10 or 20 pounds we cannot sell to advantage. Sometimes we have orders for 5 gallon cans, but not to any

extent. Honey in kegs of about 150 pounds will always find buyers at good prices. Also barrels and half barrels are easily disposed of. Iron bound packages should not be used for honey. Early in the season we received a lot of honey in iron bound kegs, and we had to have them coopered every week. Packages should not be filled up to the bung hole, at least a half gallon should be left out. Strong, wooden-hooped kegs or barrels are the best for extracted honey. Clean, new packages with painted heads make a very nice appearance and we prefer to handle that style.

HENRY SEGELKEN,
New York City.

EXCHANGES.

DRONE-LAYING WORKER BEES, BY GUST. MARHARD.—Having noticed some articles in the BEE JOURNAL on drone-laying workers, I thought I would send you my experience with them during the thirty years of my handling bees.

The first case was a strong black colony, which had been deprived of its queen to force them to construct royal cells for use in the apiary. The colony constructed seven fine cells six of which were taken out and but one left them. The young queen was lost in her bridal excursion, when they were furnished with another royal cell. The queen was again lost. The weather here in Oregon is very changeable, and unfavorable for queen-rearing a greater part of the year.

Fresh brood was then given to the colony, as there were no royal cells just then. But the bees had, in the meantime, accepted of a drone-laying worker as queen, and did not construct any royal cells. I then gave them a good laying queen, but found her gone the next day, when I gave up the colony as unredeemable, after I had taken them into a room before closed windows, and had made them all travel, to see if I could not discover any suspicious looking worker among them, in which I failed.

In the meantime summer has passed, and it happened that a small colony of bees, with a laying queen, which had left its hive in despair, came to settle on an apple tree in my garden. I hived the swarm so as to experiment with them on my despaired-of colony with the drone-laying worker. The colony belonged to a neighbor of mine, who was a real genius of a bee man, a great experimenter, and a very neglectful man, who tried to rear queens of drone brood, experimenting with his colonies until he had not a decent colony left, and who either would not shut his hives at all or would cover them but partly. But the bees did belong to another man, and it is not a costly thing to experiment with another man's property in a trifling way.

I united the small colony with the afflicted colony, shut the hive up, after smoking them well, and left them alone for an hour. After re-opening the entrance of the hive about fifty dead workers were pushed out. Next day I found the queen alive, and the colony thenceforth went all right.

I have had several cases since, and have saved every colony by taking a frame and brood with the queen and bees thereon and setting the same in a new hive. Then remove the hive with the drone-laying worker, and set the new hive in its place. Then take the combs of the affected hive out, shake and brush all the bees therefrom, before the entrance of the new hive, to make them enter; after this is done, either put the emptied combs in the hive also or

exchange them for combs out of another hive, which latter way is by far the better. The bees with the queen on the frame are by no means in a fighting spirit, and the bees of the drone-laying worker colony become dispirited by taking their combs and making them enter a new hive with new combs. The workers on the frame with their queen will defend her until better counsels prevail, and the drone-laying worker is dethroned.

The exchange of combs is also the safest way to introduce a new queen in another colony, and it can be done within an hour's time without fear that the bees will destroy her upon introduction, or any time thereafter, when the beekeeper may wish to open and inspect the hive. If the bees are forced to accept of strange combs and brood, they are just as ready to accept of a strange queen as soon as they have become convinced that the loss of their queen and her brood is irreparable. This will be within an hour's time, at the farthest. I once received from California a Cyprian queen unexpectedly. She arrived late in the afternoon, and I had no colony ready for her reception. I went to a hybrid Italian colony, found and removed their queen, took all their comb containing brood, and exchanged them for others out of another hive. Half an hour later I introduced the Cyprian queen in a black cage with the hole filled with honey in the comb. I found the queen next day all right on the combs.—*American Bee Journal.*

NOTES AND QUERIES.

This number closes volume I. We had intended to close it in May, but finding that a number of our subscribers preferred commencing in January, and as nearly all of the beekeepers subscribe for their journals in clubs, we make the change.

We hope that all of those who wish the "APICULTURIST" success will send for a few sample copies to distribute among their friends. We will willingly send all the copies of the January number that you may wish to use. The outlook is encouraging and we have every reason to hope and expect that the "APICULTURIST" will live, and this by the support of the beekeepers who desire its publication. We take this opportunity to thank our many true and trusted friends for assistance and support kindly and cheerfully offered; feeling that to them we are in a great measure indebted for the success which has already been attained.

Quite a number of our advertisers have asked us to give them an editorial notice. To such, we would say that the prevailing custom of devoting so large a portion of our periodicals to such notices seems to us to be not only uncalled for, but an injustice to those who support such publications by their subscriptions. Now, it is our wish to deal fairly and in such a way that all who subscribe for the APICULTURIST or advertise in its columns will be equally benefited and for this reason we have made it a rule not to give editorial notices of advertisements. While this is so, yet we should be pleased to receive from our advertisers, and for our museum, samples of the goods in which they deal, charges prepaid; and we will give our readers a fair and just description of their merits. We hope that by this arrangement all will be mutually benefited.

We have just received a number of copies of the "Maryland Far-

mer," published by E. Whitman of Baltimore, Md., in which we find some of the writings of Chas. Lake of Baltimore, Md. We are pleased to notice that friend Lake is doing so much to advance beekeeping in the south; his efforts are commendable and his zeal might be imitated by those in other localities to great advantage to apiculture. We most heartily wish him success in his efforts.

We have just added to our exchange list that instructive and valuable authority on poultry raising, the "Poultry World," and as usual find it brimful of information.

We understand that our friends held a most interesting and instructive convention at Flint, Mich., but we have not received the reports as yet.

QUESTIONS AND ANSWERS.

QUESTION BY EDITOR.

QUITE frequently there are persons who allow winter to come upon them before they have furnished their bees with sufficient winter stores, and it is quite interesting and important to know whether such colonies can be successfully wintered by supplying them, during winter, with either syrup, or honey or by placing cakes of sugar over the frames.

Have you had any experience in such cases, and what advice would you give? Have you had experience with wintering in this way? If so, please explain your experiments, and the results. If you have used cakes of sugar, please state how they were made.

ANSWER BY J. E. POND, JR.

In answer to the above question, I will say that I always make my winter preparations in ample season, and to that end begin as early as September 1, to arrange the brood chambers. At two or three different times I have transferred late, leaving only four to six pounds of stores in the hive. In those instances I fed cakes of sugar candy. I packed the bees on five or six frames of comb, leaving a space of three-fourths to one inch between tops of frames and covering mat. I fed candy made somewhat after the "Good" principle, of powdered sugar and honey, and laid about one pound at a time on the frames, renewing as often as consumed. I was surprised at the small amount consumed, only seven or eight pounds being used by a strong colony.

Mr. H. Scovell, of Columbus, Kansas, Editor of Kansas Beekeeper, informs me, that for three or four winters past, he has successfully tried the experiment of putting several stocks in November, upon frames of comb entirely emptied of honey; he fed them entirely with sugar syrup, in proportion of twenty pounds of sugar to the gallon of water, thoroughly dissolved. Every colony so treated came through all right, and without any trouble from dysentery. He fed every day two or three oz. of syrup, and never saw colonies look better in the spring. He experimented with fourteen colonies one season without loss, and firmly believes it is *the* way to winter. His bees were kept on summer stands. He is of opinion that bees can be more safely and economically wintered in the above way than by any other, and that it would require on an average only about two hours per day to feed from seventy-five to one hundred colonies.

I advise feeding sugar candy made of powdered sugar rubbed into pure honey till a stiff cake is made, and the feeding about one pound at a time to a colony moulded in cakes two or three inches square and one-half inch thick. My experience has been limited, covering only three winters and only three or four colonies.

Foxboro, Nov. 24, 1883.

ANSWER BY J. HASBROUCK.

Yes, I've had experience with starving bees. The locations in which I have kept them for the last ten years have been excellently calculated to get

one posted in this phase of the business. In my early experience it was different and I didn't know but that bees always got enough honey to winter on; and so after changing to a place where they never got anything after clover, in the middle of February, of the hard winter of 1878, I found out that my bees were out of honey pretty generally, and that something had to be done or they would soon starve to death. I filled frames with candy, following a suggestion made about that time in one of the bee papers, and hung them in the hives, some close against the cluster, some directly within it. The bees never ate any of that candy that I could see, but the large cold slabs soon made an end of them. I tried several other plans to save them in the steady cold weather, but I succeeded in keeping only about two out of forty.

The next season, I had increased pretty rapidly, and when it came winter, I was afraid, after a good deal of feeding, that the bees were yet on short allowance. I made shallow boxes of picture-backing large enough to cover the tops of the hives, and filled them with candy made of grape sugar and granulated sugar, according to the receipts then published in Root's ABC book, and inverted them over the bees. In the candy in five or six of the boxes, I put quite a large proportion of wheat flour. The others all came through finely; but the bees in all the hives having flour in the candy had dysentery; but instead of the usual dirty spots made in this disease, their droppings were all white, filled with the undigested flour. I took this as a confirmation of a suspicion I had previously expressed in a contribution to the Beekeepers' Magazine, that bee-dysentery was caused by pollen, which I believe was the first suggestion made in bee literature of the "pollen theory" of dysentery. Since then James Heddon seems somehow to have received the glory and the opprobrium of being the father of that theory; although, according to my recollection, he was at that time advocating the bacteria theory. If he, now under the heavy shot of Cornell and Doolittle, and the revelations of those experiments of his which are to settle everything, surrenders the championship, I shall still be "unterrified," for all my subsequent observation strengthens me in the conviction of the correctness of what I then said, "I do not know that pollen is the cause of dysentery, but without pollen there can be no dysentery, as we now know it." The principal symptom by which the disease is recognized is the spotting of the hive with the diseased excrement. Now under the microscope these spots are seen to be filled with pollen grains, not at all or but partially digested.

Whether you can succeed or not, in making the bees eat pollen when you want them to, friend Doolittle, they *do eat* it, because it is there in the excrements. Now if there were no pollen for them to eat, and consequently there could not be the usual characteristic spots, could there still be dysentery?

But this is a digression. To return to the answer. The next season was the poorest within my recollection, I did not take away a pound of surplus, and I had not a single hive which had half honey enough to go through the winter, although they were all light in bees. Winter was upon me before I had got entirely reconciled to the fact that I would have to feed those bees between two and three barrels of sugar, to get them through to fruit blossoms. I finally took up my cross and went to making candy. This time I made it entirely of confectioner's A sugar. I put hot water enough with a batch of sugar to make it a thick paste. Then I brought it to a boil, and then taking the kettle from the stove, I set it into a pan of snow or ice water and stirred the candy rapidly till it crystallized in fine grains, making a soft, moist candy, like that inside of chocolate drops. I moulded it in soup-plates covered with a paper. One of these small cakes I put on the frames of each hive, and covered snugly with woollen cloths. I watched them closely and as soon as a cake was about used up, I gave them a fresh one. In this way one need never lose a colony by starvation. The bees will never starve as long as they have any of this candy left. I brought them all through in this way satisfactorily. If I were compelled to do a similar thing again, I would try the "Good" candy, as it is more easily made, by stirring sugar into honey till it is stiff enough to mould.

Bound Brook, N. J.

ANSWER BY L. C. ROOT.

I should regret saying anything in answer to this question, which would

indicate that there was any safety in neglecting bees so that they would need feeding in the winter. The wise beekeeper will never allow this to happen. I have been asked if grape sugar might not be used in such an emergency. I have tried it and the bees died while clustered upon it under a warm mat. I am glad to be able to say that my experience, as well as that of our best beekeepers generally, seems to prove that the use of glucose or grape sugar is not safe or desirable in *any way* in connection with our pursuit.

Bees that are short of winter stores should be placed in warm winter quarters, so as to economize food and to render it favorable to feed. They should be confined to as few combs as they can cover. I would then prepare a syrup of C. sugar using one quart of water to five pounds of sugar. This I would put into the combs as directed in "Quinby's New Beekeeping," page 209, and set the comb containing it at the outside of the cluster in the hive. If the room containing the bees is sufficiently warm, they will use such food to advantage. Any plan of wintering where the bees must be disturbed is faulty, and liable to result in failure.

ANSWER BY GEO. W. HOUSE.

Yes; colonies short of stores for winter or those having no honey at all when put in winter quarters can be wintered as successfully as those having plenty of honey, such colonies are best wintered in a cellar or bee house with a temperature above 50°. I prefer good honey in such cases; frames of sealed honey laid flatwise over tops of frames is best. Next best is granulated honey cut in cakes and placed on tops of frames. If honey is not at hand, drop a few tablespoonfuls of best sugar syrup on the cluster between the combs, each day.

For out-door wintering I would recommend bricks made of granulated honey, or by mixing sugar syrup and flour together in the proportion of four parts syrup to one of flour or perhaps less. Such colonies should be securely packed, and heavy quilts should cover the bricks.

If all frames are of same dimensions—as they should be—and you have such filled with honey, insert one or two at the side of cluster of bees. This can be done at any time during winter when wintered in-doors.

Fayetteville, N. Y.

ANSWER BY D. A. JONES.

In feeding bees in winter that are short of stores great care must be taken not to disturb them more than is absolutely necessary, for a very slight disturbance causes them to gorge themselves. They may be wintered by feeding liquid food, but the risk is too great. I have always found best granulated sugar to answer the best and it must be boiled, and sugared off when it is boiled hard enough. This can be determined by putting a few drops on ice or some other cold substance. It soon cools and the surface looks wrinkled and if it breaks when you attempt to bend it, it will be brittle enough. It should not be boiled too brittle—if it just barely breaks it is better. It should then be poured into tin or iron dishes to cool, and they should be set in cold water or ice so it will cool quickly and not have time to grain. Thus you have a hard cake, and yet it is waxy and is more easily managed by the bees, as it contains more moisture. These cakes which are from one to two inches thick, and of a size suitable to cover the cluster, may be placed on top of frames and covered so as to retain all the heat. The quantity necessary to winter the colony safely may be put on at once, I have tried placing it at side of cluster by having it caked in the frame itself and hanging it in the hive, but in the case of putting it in the body of the hive I would prefer to take frames filled with comb, cut out the top part of the comb, then invert the frame, clamp boards on each side, and pour in the syrup(made as above described). Let it cake and then remove the boards. Now what have you got? A frame with comb in the lower part and with stores above. The bees have the comb to cluster on with their stores immediately above them. With such stores bees should always be wintered in bee-house or cellar, or else be very warmly packed.

Beeton, Ont.

ANSWER BY G. H. KNICKERBOCKER.

Last winter my bees were left on their summer stands, packed in the large Quinby hives, by placing a sheet of burlap over the frames and then filling sides and top with buckwheat chaff. I was away from home about three weeks last December, and during this time we had several severe storms. I found upon my return, that the roofs of two hives had leaked, the buckwheat chaff and combs were quite mouldy and both colonies had the dysentery very bad, and were over half dead. I removed the wet mouldy chaff and left the roofs off so that the sun could dry the dampness out of the combs. Towards night I filled the sides with dry chaff, cut a hole in a clean dry sheet of burlap, filled two of Houck and Peet's Twin Bee Feeders with sugar syrup, and placed them on the hives under a good thick cushion. I filled the feeders several times, and in three or four days the bees stopped dying and both colonies came out in spring in fair condition. I am quite certain that I should have lost both colonies if I had not fed the sugar syrup. This fall about Nov. 1st, I got two colonies that a neighbor was going to brimstone. It was so cold that they fed very slow, so for an experiment I carried them to the house and set them behind the coal stove, and fed them with sufficient stores for winter with one of VanDeusen's feeders; in five days I after placed them on their former stands, and they are now in prime condition. In the spring I will let you know how they wintered.

The bottom of the hive had a wire cloth ventilator which was opened when I took them into the house, and of course a piece of wire cloth was placed over the entrance. I have never used cakes of sugar.

Pine Plains, N. Y.

ANSWER TO PROF. J. HASBROUCK'S QUESTION UNDER "CORRESPONDENCE," IN NOV. NO.

Those who are interested in Professor Hasbrouck's question should bear in mind that when I speak as I do in "Quinby's New Beekeeping," p. 174, I am giving our plan of boxing with the large New Quinby hive which has room for boxing at both sides and top, and that this hive is intended to be used as a non-swarming hive. Our stocks are consequently very populous. This system of management is almost absolutely essential with us, as our flow of honey is of short duration, and our surplus must consequently be gathered quickly.

Now for our reasons for supplying the boxes, as the question indicates. The exact language referred to is this:

"I usually put the first set of boxes on the top of the hive and when partly filled remove them to one side of the combs and place a fresh set at the top. If the swarm is populous and the flow of honey continues these may be put at the other side in like manner and the top refilled." You will see that I do not say they are put to the side to be completed. It is generally known that during most seasons bees will enter the boxes and commence work more readily upon the top of the hive than at the sides.

Beekeepers like C. C. Van Deusen, H. T. Smith and others, who secure their surplus honey so largely by side boxing, may not approve of this idea, yet I think it will be generally conceded. We place the boxes first upon the top of the hives until partly full, then remove them to the side and place as many more upon the top. They will certainly occupy them more readily at the sides if partly filled. These are also placed at the other side and more added at the top. In this way the large stocks of bees are more fully occupied. We found this desirable in preventing swarming. If the top boxes are completed first as would sometimes be the case, keep the top supplied from the sides.

Now notice one advantage of using clamps of section boxes which are interchangeable with sides and top as there described and illustrated.

In putting the foundation in the boxes for guides, it should be fastened on one side and top and so arranged in the clamp that when placed on the top of the hive or at the side, the guide will be held in its place. Now place the clamp of boxes upon the top of the hive and the bees will commence building at the top of the section. When partly filled if they are turned half over as they are when

placed at the side, the incomplete part of the box will come between the completed side and the brood comb. It will be readily seen that such boxes would be much more readily filled at the sides than would such as were placed at the sides empty and filled as they usually will be first, nearest the combs and completed at the back. I have no objection to all being finished at the top, but the effort with us was to get the bees fully occupied in the quickest possible way in as many boxes as we expected them to finish.

L. C. ROOT.
Mohawk, N. Y.

QUESTION BY L. C. ROOT.

Will Prof. Hasbrouck please answer: What are the particular conditions which enable him to be so successful in fertilizing queens in confinement, when beekeepers are so generally unsuccessful?

I have experimented largely in different ways, and have never been successful in a single instance.

Mohawk, N. Y.

CONVENTION NOTES.

We take great pleasure in calling the attention of our readers to the following notice of the Northeastern Beekeepers' convention as giv. n by the secretary, Mr. House.

As we have been an active member of that association for years, we can truthfully say that when it speaks it speaks for the interest of the beekeepers.

Its members, the pupils of the honored and lamented Quinby imbued with his spirit and following in his footsteps, carry out the measures which he so desired to complete, but tenderly intrusted to others, when he fell asleep.

Questions of great importance will be brought up for consideration and we urge all who can to attend the meeting. We hope to be present and Mr. Alley of Wenham, Mass., expects to accompany us. Let us have the largest attendance that ever assembled at one of these conventions and great good will come to apiculturists as the result.

THE NORTHEASTERN CONVENTION.

The fifteenth annual convention of the Northeastern Beekeepers' Association will be held in the City Hall in the city of Syracuse, N. Y., on the 22nd, 23rd, and 24th of January, 1884.

This will be the largest and most interesting convention of beekeepers ever held in America. Many of the most scientific apiarists in the country will take part in the discussions.

The program is completed and comprises all the important topics of the day.

The question box will be opened each day and the questions discussed. All are invited to send in questions.

Implements and articles for exhibition will be received and properly arranged. Such articles should be sent to the secretary with transportation charges paid.

Five hundred beekeepers are expected to be in attendance. It will pay any beekeeper to go one thousand miles to listen to the discussions.

Reduced rates of board at hotels have been secured. All are invited.

GEO. W. HOUSE, *Sec'y.*
W. E. CLARK, *Pres.*

SOUTH EASTERN MICH. BEEKEEPERS' ASSOCIATION.

The annual meeting of this Association will be held at Adrian, in Plymouth church chapel, Jan. 23, 1884.

H D. CUTTING, *Pres't.*
H. C. MARKHAM, *Sec'y.*

The secretary of the New Jersey and eastern convention kindly sends us reports of their late meeting, but lack of space forbids its insertion. Many matters of interest were brought up and discussed and several interesting papers read which we hope at a future time to be able to give to our readers.

On account of the mass of material which is piled on our desk we must omit the reports of the Northwestern

Association; but was pleased to learn that the beekeepers had a good time and that Rev. L. L. Langstroth was able to attend. Important questions were brought up and answered and general good will prevailed. There seems to be an increasing interest and attendance at our conventions and this is truly cheering.

The Eastern New York Beekeepers' Union will hold an Annual Convention in Agricultural Hall at Albany on Tuesday, Wednesday and Thursday, Jan. 8, 9 and 10, 1884.

We invite exhibition of hives, extractors, implements and all apiarian supplies. Time will be given for exhibiting and examining, and testimonials will be awarded. Addresses and essays on important topics from prominent apiarists and questions on interesting subjects will be discussed.

A general invitation is extended to all interested in apiculture to attend.

SOL VROOMAN, *President.*
Eastern N. Y., B. K. U.

[We deeply regret not being able to accept the president's kind invitation to attend the convention as we have met with them in times past and would like to meet our old-time friends again. We would urge our readers to attend if possible, as these conventions are the life of apiculture and we promise them a good time.—ED.]

NEBRASKA STATE BEEKEEPERS' ASSOCIATION.

Notice is hereby given that the Neb. State Beekeepers' Association will meet in annual session at Lincoln, Neb., Wednesday, Jan. 9, 1884, at 2 o'clock P. M., in the Y. M. C. A. Rooms on Tenth St. between O and P, just east of the Government Square.

We have the promise of some eminent apiarists from other states to be with us and also expect to have one of the largest displays of apiarian supplies ever gathered together in the state. Each person attending is requested to bring something to exhibit or show to the edification of bee keepers and others.

Past members are earnestly requested to renew their membership and all others cordially invited to come in with us.

The ladies having been well represented at our past meetings, we certainly expect a larger attendance this session than ever before. All those not attending will surely miss a good time, for we expect the largest gathering and also the most enthusiastic meeting of practical beekeepers ever held west of the Mississippi river.

We have succeeded in making very satisfactory hotel arrangements, two dollar hotels having offered one dollar rates.

Railroads :— all bee keepers desiring to attend can obtain certificates entitling them to excursion rates over the B. & M. and U. P. railroads by applying at any time previous to January 6, to M. L. Trester, Sec'y Neb. Beekeepers' Association, Greenwood. Please apply immediately.

M. L. TRESTER, *Sec'y.*

The American Rural Home by Messrs. A. A. Hopkins and P. C. Reynolds of Rochester, N. Y., contains a very interesting report of the meeting of the Western Farmers' Club. Among other matters the question of the failure of the crop of clover seed was brought up, and the discussion was so important and interesting, that we give it to our readers.

Mr. James C. Allis, Holley, believed that the cold, wet season prevented the multiplication of bumble-bees which he thinks are necessary for the distribution of pollen and fructification of germs of clover seed.

Prof. C. H. Jenner, Brockport, said the bumble-bee theory stirred him up, and he would suggest that the black Italian honey bee will answer as a substitute for the bumble-bee. The fact that the growth of the second crop was so rapid would explain the failure of seed, but without question, bumble-bees were scarce.

Mr. Henry Harrison, and others, questioned the theory that bees have anything to do with the fertilization of flowers.

P. C. Reynolds, of R., said one of the greatest naturalists, and closest

observers of the habits of animals, insects and plants, that the world ever knew, Dr. Charles Darwin, maintained that insects, especially bees, have a great deal to do with the cross-fertilization of plants. Bees flit from flower to flower, extracting honey and transporting pollen dust from one flower to another. It is quite reasonable to suppose that some of the pollen drops from the legs of bees upon the receptacle of the pistil and so fecundates the germs. Botanists and practical fruit-growers very well understand this principle and when they wish to effect a cross between two varieties of fruit they place the plants under glass, or milinet, so that the bees may not transport pollen from other varieties. Wind is an important agency in distributing pollen, but it is not the only agency. Nature is fertile in resources for propagation of species of plants, as well as animals. The cool wet season was probably one cause of the failure of the clover seed; scarcity of bumble-bees may have been another, and, in some localities the midge in the heads of clover, destroying the germs, was a third cause of failure.

Mr. Pierce did not believe that the Italian bees could reach the honey in red clover.

LETTER BOX.

Mohawk, N. Y., Dec. 7, 1883.

FRIEND LOCKE: I have read with great interest the initiatory chapter of the old German work in your Nov. No. of the "APICULTURIST." Through the kindness of Mr. Julius Hoffman, who spent a day with me at my home, and translated some of the most interesting parts of the work to me, I am able to say that your readers will find this work of interest to them. I understand that a chapter of this work is to appear in each No. of your journal until the entire book has been translated and printed. When it is considered that this book was published one hundred years ago and that the experiences there given are those of a practical bee manager for fifty years previous to his writing, it will not be wondered at that you are going to the trouble and expense of translating it into the English.

I predict that this will make your paper largely sought for by beekeepers generally.

The first sentence of this introductory chapter will prove to every thoughtful person what the character of the man was who wrote this wonderful book of his time.

L. C. ROOT.

Christiansburg, Ky., Nov. 21, 1883.

DEAR APICULTURIST: Notwithstanding the dry weather of August and fore part of September, my bees go into winter quarters in fair condition. In arranging my bees for winter I find them self-sustaining, and some surplus besides. This is quite gratifying to me after suffering some apprehensions of a big bill for sugar. "No sugar in mine" this time. We had quite a cold snap about the middle of this month which caused the usual mortality among the old worn out bees. It is quite warm now.

G. W. DEMAREE.

NOTICE.

Over one hundred years ago, T. L. Christ the author of the German work which we are having translated for the APICULTURIST, says, "one ought to pay more attention to this branch of agriculture" and yet we in this enlightened age of the world are just recognizing the fact that apiculture is properly a branch of agriculture, and one upon which agriculture is dependent for its success and which should be taught as one of the necessary branches of study in a thoroughly agricultural education. Where are our apiarists? We hope and trust that our prominent active apiarists will become members of our agricultural clubs, and urge the necessity of recognizing apiculture as a sister industry. There is a great deal of good work to be done and who will do it.